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EXPRESSION OF ENGAGEMENT IN GAMIFIED STUDY COURSE

Marius Kalinauskas

Mykolas Romeris University, Lithuania
m.kalinauskas@mruni.eu

Abstract

Purpose – To explore expression forms of engagement during gamified study course.

Design/methodology/approach – The qualitative study was being conducted in order to find out how engagement is being expressed among the students in university during one semester of gamified study course. The data were collected in two group interviews and one set of individual interviews. Interviews were conducted after second, third, and fifth month of the semester. Data were analyzed using thematic qualitative analysis approach.

Finding – Study has shown that engagement in gamified study subject manifested itself in long term and short term forms of expression. Data analysis have shown that engagement is expressed in six forms: participation, rush, flow, emotional engagement, cognitive engagement, and agentic engagement. It is different from motivation that was influenced by three factors: extrinsic rewards, intrinsic satisfaction, and lack of motivation.

Research limitations/implications – The results of this study have shown that engagement is context sensitive. Since the research is done in exploratory nature the conclusions cannot be generalized. Ability to feel engaged is strongly dependent from personal characteristics of a student. Moreover, the external factors like relationships among group members as well as role of an educator might have significant result on student engagement in gamified study subject.

Research results allow to connect two concepts of engagement. In educational sciences engagement is understood as a long term phenomenon while in game studies it is explained as temporal experience. Applying gamification in university study subject allows to explore what temporal features of engagement does transfer to long term engagement. Research results are also significant in trying to find consensus between two competing approaches towards engagement phenomenon in educational sciences and game studies.

Practical implications – By revealing how engagement is being experienced in gamified study subject it is possible to better understand how different gamification techniques and mechanics lead to motivational outcomes. Also, not all forms of engagement might be desirable in educational context. The results of the study allows broader understanding about the functioning of gamification mechanics which could lead to improved gamified systems used for educational purposes.

Originality/Value – The study takes an original approach in exploring expression of engagement in two overlapping disciplines - educational sciences and game studies. There are very few studies which use qualitative methods for deeper understanding of engagement in gamified learning environments.

Keywords: engagement, gamification, gamified study course, gamified learning environment

Research type: research paper
Introduction

Gamification has become a buzzword in academic and business circles not long after the term was introduced back in 2008 (Walz & Deterding, 2015). Even though elements of game design were used before gamification has become a trendy topic (Nacke & Deterding, 2017), the interest in gamification increased after business organizations and marketers began to incorporate gameful design principles in their services. During this period practitioners like Zichermann & Cunningham (2011) or Werbach & Hunter (2012) suggested that gamification could revolutionize how people interact with business services or educational products. On the other hand, critics of the method argued that it is targeted to exploit users and is focused on short-term behavioristic goals which contribute little to none to gameful experiences (Bogost, 2011a; 2011b; Klabbers, 2018). Despite the ongoing debate about the goals and extent of gamification, researchers from various domains began to explore gameful design effectiveness in practice. However, the idea that application of game elements in the activities which are not directly related to games affect motivation and engagement had more of a wishful thinking approach rather than robust scientific evidence. Literature meta-studies revealed that there is no consensus among the academics about the effectiveness of gamification (Hamari, Koivisto, & Sarsa, 2014; Dicheva, Dichev, Agre, & Angelova, 2015). Majority of the studies explore gamification effectiveness in the field of education. However dissonance in methodological standards and lack of clear definitions what is considered as an outcome of gamification leaves this field of research fragmented. The study of Seaborn & Fels (2015) revealed that in educational context gamification is mostly associated with the alteration of engagement. However, in many instances engagement is used as self-explanatory term without further elaboration on the concept. Gamification is closely related to game studies (Landers, Auer, Collmus, & Armstrong, 2018) but researchers analyze it mostly in educational setting. Whitton & Moseley (2014) claim that understanding of engagement in games and education is different in „potentially conflicting, ways“. This means that concept of engagement should not be trivialized and needs to be investigated further especially in interdisciplinary domains.

Engagement in game studies is associated with temporal, intrinsically driven experiences (Boyle, Connolly, Hainey, & Boyle, 2012; Martey, et al., 2014). In education it is explained as phenomenon oriented towards long-term goals (Fredricks, Blumenfeld, & Paris, 2004; Reeve & Tseng, 2011). It is not known, however, what forms of engagement are being expressed when gamification is being applied in educational setting, thus creating a scientific problem for this study. Expression forms of engagement is considered as an object of this research. The objective is to explore how engagement is being expressed during the gamified study course. The research question is: What forms of engagement does the students experience during the gamified study course? The research results contributes to better understanding of engagement and its transformations when two study domains are being integrated. From the practical point of view study helps designers and developers to better understand how motivational affordances in gamification shape the ways of engagement expression.
Definition of gamification

Gamification is rooted in video games but the scope and goals of this method are still being debated (Landers, Auer, Collmus, & Armstrong, 2018). Some authors claim that gamification is closer to marketing endeavors and workplace productivity practices applied before the term gained wide recognition (Nelson, 2012; Seaborn & Fels, 2015). In practical gamification literature Zichermann & Cunningham (2011) focuses on psychological affection of game-like mechanics. However, their proposed gamification elements are strongly oriented towards extrinsic stimuli and may not necessary lead to gameful experiences (Bogost, 2011a). Werbach & Hunter (2012) definition of gamification is close to Deterding et al. (2011) and is oriented towards business frame. Authors argue that gamification is focused on extrinsically motivated experiences that make feedback systems more engaging. Kapp (2012) claims that “game-based mechanics, aesthetics, and game thinking” are at the core of gamified system engagement. In academic literature researchers argue that games and gamification could be detached by analyzing the purpose and amount of game mechanics elements used in the game-like systems. Deterding, Dixon, Khaled, & Nacke, (2011) define gamification as the “use of game design elements in non-game contexts”. Based on this definition gamification embodies some elements similar to games but fall beyond the scope of game design itself. Authors deconstruct gamification into gamefulness (lived gameful experiences), gameful interactions (elements and contexts that summon these experiences), and gameful design (practice of constructing gameful experiences). Hamari, Koivisto, & Sarsa, (2014) argue that definition by Deterding et al. does not specify which psychological outcomes are inherent to games and which ones belong to gamification, thus making it hard to circumscribe the scope of gamification. Houtari & Hamari (2012) propose that gamification should be defined as a „process of enhancing services with (motivational) affordances in order to invoke gameful experiences and further behavioral outcomes“. Current gamification research discourse leans towards merged approach where elements of game mechanics are as important as psychological and behavioral outcomes. Seaborn & Fels (2015) summarize most popular definitions of gamification and propose their version of it claiming that gamification could be defined as “the intentional use of game elements for a gameful experience of non-game tasks and contexts”. For the purpose of this paper, Seaborn & Fels definition will be used as a basis for qualitative study.

Notions of engagement

**Engagement in education**

Although there is no singular definition of engagement, researchers agree that it is a multidimensional construct (Boyle, Connolly, Hainey, & Boyle, 2012). Educational sciences and game studies have different approaches towards engagement (Whitton & Moseley, 2014). In educational context this phenomenon is explained as continuous process while in game studies it embodies instant experiences. One of the most popular approaches state that engagement consists of behavioral, cognitive, and emotional dimensions (Jimerson, Campos, & Grief, 2003; Fredricks, Blumenfeld, &

Literature review reveals that in those cases when game or game-based learning environment are being investigated, engagement has a tendency to be expressed through related concepts. However, the same affections or experiences can be named differently thus making it difficult to perform consistent analysis of the construct (Sharek & Wiebe, 2014). In some cases such concepts as flow, motivation, or immersion are used as synonyms to engagement (Annetta, Minogue, Holmes, & Cheng, 2009; Nelson 2016). In educational contexts motivation is considered to be closest to engagement (Reeve, 2012). Researchers agree that engagement has some externally observable elements that arise from behavioral characteristics of an individual. It is also agreed that deeper forms of engagement are hard to track. The relationship between engagement and related forms of affection is not well established and the lines between these concepts are obscured due to lack of scientific evidence.

**Engagement in games and gamification**

Engagement definitions in games are overlapping with other concepts like motivation, immersion, or flow. Game researchers are more interested in temporal experiences that could be described as unique forms of engagement that could be interpreted as close but separate construct defined as an outcome, precursor, or state of engagement. According to Schoenau-Fog (2011) engagement in games can be „explained as a process whereby players engage in a pursuit of intrinsic or extrinsic objectives and consequently perform a range of activities in order to accomplish objectives and feel affect“. O’Brien & Toms (2008) deconstruct engagement through dimensions of „challenge, aesthetic and sensory appeal, feedback, novelty, interactivity, perceived control and time, awareness, motivation, interest, and affect“. Martey, et al. (2014) used multiple engagement measurement methods in case of digital game and came up to a conclusion that engagement is being experienced in many different ways but the correlations between those measures were limited.

Motivation is one of the most popular concepts to be used in game oriented scientific research altogether with engagement (Przybylski, Rigby, & Ryan, 2010; Rigby & Ryan, 2011; Fuster, Chamarro, Carbonell, & Vallerand, 2014). Evidence show that these two concepts are closely related and in many cases overlap. Studies focused on games usually deconstruct motivation, or refer to motivational theories (Garris, Ahlers, & Driskell, 2002; Klimmt & Hartmann, 2006; Liu & Chu, 2010) However, motivation is considered as a broader concept that integrates short term engagement through which it can be observed (Reeve 2012).

The concept of flow, explored by Csikszentmihalyi (1990: 1997; Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005) is also very common in game related literature (see
Harmat, et al., 2015; Kiili, de Freitas, Arnab, & Lainema, 2012; Procci, Singer, Levy, & Bowers, 2012; Nacke & Lindley, 2010). As an optimal experience flow requires adequate challenge and skills, purpose, and feedback (Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005). Literature review suggests that flow could be described not only as optimal experience, but also as optimal form of engagement. Because of its gratifying nature and vast amounts of scientific studies supporting its expression, theory of flow is widely applicable in various domains.

Immersion – the last concept that is most commonly used together with engagement in game studies. This term is usually met in publications that focus on overall atmosphere and narrative of interactive media (Bormann & Greitemeyer, 2015). Immersion is also one of the least explored forms of engagement. This concept could be defined as spectrum of psychological experiences related with engagement to fictional environments, absorbing attention and personal perception system (Lombard & Ditton, 1997; Murray, 1997). Some authors interpret these forms of affection as parallel but representing different outcomes of same kind of activities (Douglas & Hargadon, 2000). Others – consider engagement as a subset of immersion (Brown & Cairns, 2004; Nilsson, Nordahl, & Serafin, 2016). Yee (2006) holds immersion as a part of motivation. Ermi & Mäyrä (2005) and Nilsson, Nordahl, & Serafin (2016) state that immersion itself has multiple dimensions. Literature review reveals that the nature of immersion is still being debated. In some instances (see Jennett, et al., 2008) immersion definition is close to one of flow. Hamari, et al., (2016) goes even further by claiming that immersion can be described as characterization of flow experiences more focused on learning and related emotions. However, studies analyzing immersion does not always reproduce the same outcomes and this could be explained through insufficient understanding of the construct.

Studies on gamification have a tendency to use term “engagement” without specifying its multidimensional nature (Fitz-Walter, Tjondronegoro, & Wyeth, 2011; O’Donovan, Gain, & Marais, 2013; Vaibhav & Gupta, 2014; Dicheva, Irwin, Dichev, & Talasila, 2014; Hamzah, Ali, Saman, Yusoff, & Yacob, 2015; Leaning, 2015; Chang & Wei, 2016; Tan & Hew, 2016). In majority of publications authors focus more on how and where gamification is applied without deeper dwelling into dimensions of engagement. It is also common to address motivation as a synonym to engagement. Flow is more commonly met in publications with better scientific groundings to the theory (Huotari & Hamari, 2012; Sillaots, 2014; Shi, Cristea, Hadzidedic, & Dervishalidovic, 2014; Kalinauskas, 2014; Hamari, 2017). Immersion, however, is explained in rare cases (Döpker, Brockmann, Stieglitz, & Horbach, 2013) and is generally used as a self-explanatory concept. For the purpose of this paper engagement will be considered as inclusive phenomenon that might express itself in various temporal or long-time forms.

Gamified study course

In this section of the paper gamified study course will be presented as the basis for the qualitative study. There are two main terms (gamified system, and gamified environment) that will be used in order to separate computer-based system from broader gamified activities. Gamified system could be defined as computer-based electronic study environment where game design elements are used to foster
engagement during educational activities. Gamified study environment is a broader application area for gamification where educational instructions fall beyond gamified system but the outcomes of educational process are compatible with the gamified progression metrics. The gamified system was created based on Aleven, Myers, Easterday, & Ogan (2010) proposed “framework for the analysis and design of educational games”. System framework consists of learning objectives, MDA framework by Hunicke, LeBlanc, & Zubek (2004), and instructional design principles. Even though Aleven, et al. use this framework for creation of educational game, its main characteristics were suitable for gamified system as well. The learning objectives were defined by using Bloom’s Revised Taxonomy (Anderson, Krathwohl, Airasian, Cruickshank, Mayer, & Pintrich, 2001). Based on MDA framework main mechanics and aesthetical outcomes were defined. Finally, instructional design principles were formulated as follows: a) progression by scaffolding, b) autonomy, c) honest competition, d) relevance of content and form. The gamified system was created based on these principles in order to maintain coherency of the main aim and to restore the balance if some of the system users would demonstrate undesirable forms of agency.

Mechanics for the gamified system were refined based on lens of intrinsic skill atoms method, proposed by Deterding (2015). Based on this framework mechanics were interpreted as questions that led to refinement of motivational affordances, each different in its conceptualization level (see figure 1). Each upper category of the mechanics represented the motivational affordance that was embodied through lower level mechanics. The highest level motivational affordances were embedded into instructional design principles.

![Figure 1. Hierarchy of mechanics elements used in gamified system](image)

In gamified system students had access to mandatory and optional assignments. Each of them were evaluated by points. As the topic of the course went further the amount of points that were accessible to the students rose higher as well. Point system was related to levels and leaderboard. Students with higher levels had higher access to special tasks. However, they were separated from lower level activities in order to avoid repetitive point farming. As the level progressed tasks became more abstract and required more creative input. Gamified system had integrated achievements that were used as alternative form of aesthetical feedback about the progress in the system. However, achievements were only partially connected with levels. Sometimes
achievement badges were given for certain forms of agency or as a warning for unwanted behavior. Gamified course had two “boss levels” which represented control test and the final exam. Some tasks were given by course administrator (educator), outside of gamified system. The results of these interactions were also included into progression metrics.

There were 15 levels to achieve and 45 badges to collect. Levels were associated with avatars as well as certain privileges that helped to create additional challenges for those who progressed faster. Each student had their individual progress bars with accumulated points. An additional progress bar reflected the upcoming tasks as well as missed or skipped educational activities. At the beginning of the course students were awarded small amounts of points for behavioral activities. However, later in the semester the values of points for these behaviors were reduced to zero in order to shift the focus from extrinsic to intrinsic motivators achieved through more abstract and challenging tasks. Gamified course took one semester (5 months) to complete.

Research design

The qualitative study was conducted in order to investigate what forms of engagement do the students experience during the gamified study course. Qualitative research design allowed to explore engagement expression when two scientific domains (educational sciences and game studies) were being merged together. Since scientific publications in this area are scarce, qualitative approach was chosen in order to reveal possible engagement manifestations on a specific case. Research data were gathered by applying general interview guide approach (Patton, 2002; Turner III, 2010; Johnson & Christensen, 2017). During the data collection period two group interviews and one set of individual interviews were conducted. First group interview was organized during the second month of semester, when informants were familiar with gamified course but their progress level did not exceed 50%. There were seven students participating in first group interview. Informants were selected based on random sampling method (Creswell, 2012) in order to represent the population. There were 25 course members (21 female, 4 male) with average age of 21. Second group interview was conducted after third month of the semester, when the students finished first boss level and reached around 70% of overall progress. During this interview eight informants were present. They were selected based on purposeful sampling method (Creswell, ibid.). The criteria for the selection was based on their forms of agency in gamified study environment. Excessive or unusual behaviors (exceptional performance, cheating, focusing on specific activities) were the main criteria for being included in second group interview. Third set of interviews was conducted after the completion of the course at 5th month of the semester. However, this time interviews were conducted individually. This approach was taken in order to avoid data distortion due to power relations in a group (Johnson & Christensen, ibid.). Purposeful sampling method was applied with the aim to question those students who reached 13th or higher level, and those who were below level 12. Four student from the first group as well as six students from second group agreed to participate in final stage of the interviewing session.

Thematic analysis approach was used as main approach of refining scientific evidence (Bazeley, 2013). Thematic analysis is used for “systematically identifying,
organizing, and offering insight into patterns of meaning (themes) across a data set” (Braun, Clarke, & Terry, 2012). During thematic analysis initial and axial coding was used in order to deconstruct data and later define the relations between codes (Liamputtong, 2009). Before the first stage of the analysis transcribed interviews were repeatedly re-read several times. Notes and memos about the emerging patterns were taken and later became subject material for data analysis. During the first run of coding outstanding segments of the texts were selected with emphasis on experiences, perceptions, contexts, and attitudes towards gamified course. After the first run there were 173 original codes produced. As suggested by Bazeley (ibid.), analytic memos were given to codes that were potentially forming a pattern in order to secure important information for alternative coding stages after the deconstruction of data. In the next stage codes were grouped and regrouped based on their links defined in the first stage of coding. There were 52 codes left after the second iteration of coding. In the third stage codes were grouped in 29 basic themes that later were merged into 9 organizing themes. Considering the research question one global theme was refined that had 2 organizing themes consisting of 10 basic themes.

Findings

The informants describes that the expression of engagement is constituted by 3 motivational factors (extrinsic rewards, intrinsic satisfaction, lack of motivation) and 6 forms of engagement expression (participation, rush, flow, emotional engagement, cognitive engagement, and agentic engagement).

Motivational factors

Extrinsic rewards. Study revealed that extrinsic rewards (e.g. badges, levels, and points) were considered as additional stimuli that led to participation in gamified activities. Leveling system was highlighted as the most extrinsically rewarding. Levels were perceived as the biggest motivational factor to participate in gamified activities by some interviewees since it allowed to “avoid” control tasks and exam that were defined as “risky” and “hard to predict”. The uncertainty of the final result motivated some student to choose repetitive behavioral strategies that provided minimal amounts of points. Those students who were mostly oriented towards this goal claimed to have little attention for visuals, badges, or leaderboards. Also, extrinsic rewards were perceived as long-term strategic goals, valued through the lens of future benefit. Informants described their reasoning as follows:

I was tempted by the possibility to level up fast and to avoid an exam. I need to reach this level! I need to somehow get away from all these control tests and exams. [Zelda]

The main reason why I participated in this course is the chance to avoid control tasks if my level was high enough. If I know that the result is worth pursuing this motivates me. All the visuals, badges, and leaderboards does not bother me that much. [Regina]
Badges were defined as additional form of external reward mostly associated with instant satisfaction and aesthetical admiration. However the value of badges was perceived differently, depending on the outcome that a badge is suited to produce. If achievement signaled a simple completion of a task it was perceived as less valuable compared to those badges that granted certain privileges. Interviewees associated badges with the specific type of feedback that allowed “to feel safer from the uncertainty of the exam”.

**Intrinsic satisfaction.** Intrinsic motives were also present but not so literally expressed during the interview sessions. Informants strongly emphasized on value of “learning something new” since it is related with “purpose of studying in the university”, an ability “to grow”. Qualitative data analysis revealed that even those students who were mostly focused on extrinsic rewards, later in the course felt the intrinsic satisfaction that was situated by the sense of intellectual progression.

_I did the tasks because of points. And attended the classes for the same reason. But later I found that other meaning. In the things I've learned. [Regina]

_During the workshops you realize that what we play, what we apply in our projects, we learnt it during the course. This is what we learned for, this is why we struggled. [Alma]

Intrinsic satisfaction is related to volitional choice to be a part of gamified environment by “following the rules of the game”. The need and ability to be a part of the study process arise from the personal value system. It is reinforced by engrossing study content and personal determination to keep progressing even when the challenge was high. With the help of supporting feedback system embedded in gamified environment students were encouraged to perform better. But they made decisions autonomously, based on their inner needs and values. The source of intrinsic satisfaction was resulted by their self-determined performance and the relevance of the study material. According to informants, the tasks were “interesting”, “capturing”, and “innovative”. Importance of the study content is also related with the purpose of the studies in university. One of the informants stated that:

_It is important to be familiar with the learning material, because you are studying in higher education institution. It is not enough just to listen through and to get the diploma. There's more than that. [Cortana]

**Lack of motivation.** Interview data revealed that pursuit of extrinsic rewards led to fatigue. The sense of “being tired” and “apathetic” were common to all participants of the gamified course and were especially vividly expressed after the first control tasks (3rd month of the semester). Most students stated that after boss levels the determination for work dropped dramatically. According to informants they “almost wanted nothing and did nothing”. Even those participants who were interested in routine point gathering reported decreased motivation and “didn’t want to do anything”. Gamified system had variety of optional activities as well as various visual elements being integrated within the main study material. While the novelty of the course was a powerful driver to engage, when it wore off – students stopped responding to an external stimuli. According to one of the students:
There’s just too much of everything. Gamification within the course looked fresh and new. It was interesting to see what’s next. But now we are just overwhelmed by everything. [Eliza]

Differences in characters, attitudes and values also led to decreased motivation. According to some informants, during the group work few students were unable to “contribute to the common goal”, because they “just didn’t care”. Conflicting situations in group projects also played a part in lack of motivation. This was especially noticeable among the students who preferred individualistic approach to work. For them needing to communicate and search for the compromises seemed “annoying” and “frustrating”. Some of the students claimed that poor group relationship dynamics lead them to “desperation and apathy”.

“Extremely high challenge” was named as one of the demotivating factors among course participants. It led to “frustration” that later was expressed through distancing from educational activities. Low self-confidence as well as unwillingness or inability to reach required objectives was the reason why some of the students backed down from optional activities first. Those tasks that were perceived as “repetitive”, were also ignored or done “for the sake of progress bar”. Repetitiveness also contributed to the loss of novelty. Finally, unclear or insufficient feedback was considered as an obstacle for being motivated:

I just pressed a button and then got the question. Then I pressed the button again and everything disappeared. I failed the task! I didn’t get the essence of the game. There was no direct feedback or assistance. I got so angry! I couldn’t understand what I was doing wrong. [Aria]

**Forms of engagement**

**Participation.** The long-term engagement is expressed through basic theme of participation. It arises from continuous activities performed during the study process. Participation is a combination of lecture attendance and a long run performance in gamified study environment. Qualitative data analysis revealed that those students who defined themselves as “engaged” were active in wider spectrum of academic activities, not only those where gamification was applied. Participation is also associated with willingness to contribute to study process. Informants claimed that they were “actively trying to attend the lectures” and to “complete most of the optional tasks”. Participation was associated with general sensation of “being within the course”. Some students associated it with academic environment, a necessity to “keep up with the standards” of what it means to be studying in the university. Others were more focused on relationships with group members and cooperation with academic staff. Long-term participation was associated with the content quality of the course. In comparison to traditional material of other lectures, informants claimed that working with gamified study content was “a little bit more fun”. Lectures and readings seemed less “bleak and boring” and that kept students “closer to the information”. Gamification elements together with interesting content of the course reformed the long term habits of some students. Two of the interviewees noted that:
If gamification elements would not be present I really doubt that I would log-in so often. I'm very attracted by them. It probably changed my learning habits. My presence in gamified study system is more frequent than on Facebook. That surprised me a lot. [Mario]

At first my participation was average. But somewhere around the middle I was so hooked! I wanted do more, to progress faster. I can’t even explain why. You just wanted it. [Tali]

**Rush.** This form of engagement is associated with fast emotional reaction towards game-like features of the gamified system. Research participant claimed that at certain moments they wanted to “accelerate the progression” and were “hooked” on the point gathering. In most of the cases rush was experienced during behavioral tasks that were reflected in the progress bar. Interviewees claimed that during the rush they felt the “obsession” with the activity and compared it to “gambling”. This form of engagement is unconscious, fueled by zest and adrenalin, oriented towards itself. In some instances it could be compare to the flow state but rush is less related with the optimal experience of happiness, though it does require a challenge. Informants claim that rush affection is “triggered by competition”. It is not always perceived as pleasurable experience because informants feel that they “lost control of the situation”. One of the participants explained the rush affection while working on one of gamified task:

> I loved to reach for higher levels. I was very interested in the process of doing it. I was captured by the feeling to act now and there. I couldn't control myself, I was deeply emotionally engaged. I desperately wanted to win, to reach the higher rank. [Alessa]

**Flow.** In this research the basic theme of flow was constructed based on interview material that revealed the highest peaks of engagement. Research data show that flow is temporal experience that is being expressed as deep form of engagement. Informants who talked about their optimal experiences elaborated on “being within of what you do”. The activities seemed “light and fluid”. It was also compared to “euphoric feeling” that resulted in “joy” and “gratification”. The experience of flow was compared to “total disconnection from the world” and is accompanied by wish “to know more”. This state also shifts the overall perception of a person as one feels that the activities require much “less effort” to be completed. The experience of flow is also identified as being “higher quality” than just regular interest. It is described as affection that comes “from the other side”. Informants reported that being in the flow distorted their perception of time. Also, the focus on the activity is significantly increased. Interviewees report that:

> It’s the feeling of being engaged and concentrated towards particular issue. No one can distract you from it. You’re so into it and seek more. The passage of time was barely noticeable. With gamification the time just flew. I felt happy and passionate at what I’m doing. [Samara]
Flow is associated with positive emotions, happiness, pleasure, and gratification. Informants claimed that they felt no “external pressure” to act. This form of engagement was related to ability to overcome the challenge. Although some educational activities were considered as “tough”, ability to cope with them was pleasurable and allowed to “feel enjoyment”.

**Emotional engagement.** The participants of the research revealed that engagement is directly associated with spectrum of emotional experiences that define engagement causes and results. One of the most commonly mentioned experiences was the “sense of novelty”. Novelty is understood as the feature of gamified system that is “surprising” or “unusual”. It is also described as a sensation of “curious discovery” of something that was not applied or experienced before. However, the sensation of novelty is short lived. Whenever the elements of gamification or the types of educational activities began to repeat, the sensation of novelty faded fast. Gamification elements were defined as “new” and “unexpected”. Informants often draw comparisons between gamified study course and other disciplines in the university. According to them, gamification “finally brought something new”, it was perceived as “original and unexpected”. One interviewee described their sensation of novelty as follows:

> For me engagement is up to the point while it’s new, unexperienced. While I don’t know, do not understand. Only then I’m interested in researching, I’m engaged in doing. I knew that something new is about to come up in gamified system. That’s why I visited it so often. It became a habit on its’ own. It was different compared to others. [Zelda]

Emotional engagement also contributed to sensation of “admiration”. Visual elements of gamified system were defined as “cute”, “captivating”, and “charming”. However, for some students visual elements associated with “childish” activities. Few informants stated that gamification elements “are not necessary in university studies” because they “are not in the kindergarten anymore”. They added that “there’s nothing wrong with play”. However, students “shouldn’t need some sort of games in order to learn”. In other words, gamification elements for some students worked as force that reduced the “seriousness of study process”. Sometimes visuals of the gamified system associated with “visual noise” that suppressed the most important part of university studies – learning. Emotional engagement was one of the main affections that led to experience of fun. Interviewees claimed that variety of optional activities made it “fun to explore”. In this case fun is perceived as emotional reaction related with joy.

**Cognitive engagement.** This form of engagement is associated with intellectual challenge and ability to overcome it. Cognitive engagement is resulting the sensation of serious fun that is experienced when knowledge is being generated or gained during the learning process. According to research data, successful application of newly acquired information caused positive emotions, often described as “rewarding”. Informants admitted that hard tasks required “stepping beyond the limits” of oneself. It was noticed that students “worked very hard” and “it wasn’t easy”. Still, the ability to overcome the challenge was rewarding and participant of the gamified course stated that they “liked it that it wasn’t easy”. Cognitive engagement was also expressed through communication and negotiations with other group members. Although the
process of “figuring out something new out of nothing” was at some point frustrating, the final result was rewarding and fun. On the contrary to easy forms of fun, associated with the emotion of joy, cognitive engagement situated fun arise from interest and gathering of new knowledge, a satisfaction of “being better than you were yesterday”. More abstract tasks created higher challenges thus resulting higher emotional reward when the activity was completed successfully. Gamification elements in this context served as facilitators of competition and feedback. Competition was described as “healthy at certain extent” and was oriented towards others, as well as oneself. According to informants, intellectual work with others “allowed experiencing the sense of fellowship”. Also, cognitive engagement was experienced in those cases when skill level matched the challenge.

I’m engaged in those tasks where I feel that my skill level is sufficient enough. Where I can achieve more and to overcome my limitations. [Mario]

Agentic engagement. Gamification in the sense of agentic engagement works as a medium for collaboration and competition. It affects engagement indirectly. In most of the cases it is being expressed through positive feedback for contribution to study material. In all three interview stages informants emphasized on the importance of the relationship between educator and the students. The exchange of knowledge ensures warmer atmosphere in the class. Learning process seems less “constrained” and more creatively empowering. Ability to “contribute to study material” and freedom to “choose” the ways of progression was mention among the most important engagement facilitators. When asked about educational content creation, informants noted that it allows them to “try to fit lecturers’ shoes”. Research participants also added that ability to test their knowledge in practice is highly valued. Agentic engagement was expressed through intellectual and personal growth. Data analysis revealed that those activities that required contribution and participation also improved creative capabilities. Through expression of creative ideas group members could learn and improve. One interviewee elaborated on the importance of creative activities:

Your ideas have to be connected with the knowledge that you gained. It’s challenging but attractive at the same time. You’re fully into it and you need to show what you can come up with, how to present it, how to demonstrate the skills that we obtained in the classes. [Alma]

Agentic engagement is expressed through interactions with other group members. Possibility to learn from each other mistakes allowed to “feel more emphatic and tolerant”. Content creation together was perceived as transformative, forcing to “rethink the characters and performances” of colleagues. At the same time collaborative work fostered openness to new ideas. One of the students claimed that “engagement comes through discussions and communication with others. It seems like you can do the same things again and again”. Contributing to the content of the course by collaboration was positively evaluated by other interviewees as well. Some students revealed that they were so “engaged that the project was finishes in one night”. For them discussions among group members seemed “very interesting”. This form of
engagement rises from well overthought and valued learning process that is oriented towards quality of the final result.

On the other hand some students felt disengaged by collaborative activities and were preferring to work on their own. According to them “you cannot trust your teammates at one hundred percent”. Attitude problems, as well as differences in value systems and personality traits led to “conflicts within the group”. In those instances dominating characters tried to force their ideas into action. This created tension and “negative emotional climate” that later converted into disengagement.

Discussion

The results of the study show that engagement in gamified study course is affected by 3 motivational factors and has 6 forms of engagement expression. Literature analysis revealed that engagement is being interpreted differently in educational sciences and game studies. In educational context engagement is explained as long-term process, while in game studies it is more focused on short term experiences. Results of this study support the claim that engagement is multidimensional construct and in some extent cover behavioral, emotional, and cognitive dimensions, similarly to other authors (Jimerson, Campos, & Grief, 2003; Fredricks, Blumenfeld, & Paris, 2004; Hoffman & Nadelson, 2010). However, behavioral engagement reveals itself through participation and rush in the context of this study. The dimension of agentic engagement, analyzed by Reeve & Tseng (2011), was also present during the gamified course. Literature review revealed that when gamification is being applied in learning environments, engagement is rarely conceptualized. However, in those gamification studies where engagement is being elaborated on, game-like approach to engagement is more common.

This study shows that application of gamification in university study course cause long-term and short-term forms of engagement to overlap. Interview analysis confirmed the claim that consensus based approach on engagement should be found when game-like activities are introduced as a part of educational practices. These findings are close to Whitton & Moseley (2014) proposed theoretical model of engagement. However, the current findings are broader in scope and does not find significant evidence that engagement is a hierarchical construct. The results of the study show that motivation and engagement should be treated as separate concepts. According to research results motivation is being explained as long-term phenomenon that is influenced by forms of engagement. This conclusion confirms the claims of Reeve (2012) and supports the idea that motivation could be observed through expression of engagement. Motivational factors serve as foundations for engagement, although their specific relation is not yet clear. Three motivational factors were found during this study. Extrinsic reward and intrinsic satisfaction are close to theoretical conception of intrinsic and extrinsic motivation in games (Przybylski, Rigby, & Ryan, 2010; Rigby & Ryan, 2011). However, the lack of motivation is also having strong role in expression of engagement. These findings have similarities with Skinner, Kindermann, & Furrer, (2008) concept of disaffection.

When gamification is being applied in educational context, engagement acquires expression forms common to games. According to this study, engagement is being expressed through participation, rush, flow, emotional engagement, cognitive
engagement, and agentic engagement. Participation and rush are closest to behavioral engagement (Fredricks, Blumenfeld, & Paris, 2004) but they represent different emotional states and time perspectives. Rush is strongly resulted by the competition and emotional zest but does not necessarily represent the optimal experience of happiness that is commonly associated with the affection of flow (Csikszentmihalyi, 1990; 1997; Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005). Emotional engagement is mostly expressed through easy forms of fun (Lazzaro, 2004; 2009) and the sense of novelty (O’Brien & Toms, 2010). Cognitive engagement is resulted by intellectual challenge and serious forms of fun. Agentic engagement is being experienced through communication with others, contribution to overall study process, and by collaborating with the educator. These results reflect the claims of Skinner, Kindermann, & Furrer, (2008) that focus on the role of educator in experiencing of engagement. It is also close to the agentic engagement conception proposed by Reeve (2012). Gamification is most strongly affecting participation, rush, flow, and emotional engagement. Cognitive and agentic forms of engagement can be facilitated by gamification but are less dependent from the mechanics that are being used in gamified course.

Immerision was one of the affection forms commonly met in scientific literature that was not clearly distinguishable in this study, similarly to Hamari, et al., (2016). It could be caused by more narrative oriented nature of this phenomenon and unclear boundaries of its definition.

**Limitations and future work**

The current findings are limited by a small sample size of the individuals at specific point in time. Since the research is done in exploratory nature the conclusions cannot be generalized. All the results are contextual. It means that demographic criteria, approach to gamification, group dynamics, and input of the educator could have significant role to the research results. Study reveals qualitative evidence of engagement expression. However, for behavioral forms of engagement mixed method approach could be suited better.

Future research could focus on determining the relations between motivational factors and forms of engagement expression. It would be also beneficial to explore the consensus based theories when educational sciences and game studies are being integrated. The role of an educator in gamified course is clearly underestimated in scientific literature. Future research should focus on explaining how personality traits and teaching techniques of an educator affect forms of engagement in gamified study courses. The notion of immersion is still unestablished in interdisciplinary studies so it could become a researchable problem for future work.

**Conclusion**

Interdisciplinary studies require consensus based approach to phenomenon of engagement. Study revealed that understanding of engagement in educational sciences and game studies is different. However, when these two fields are being merged together, new approach to conception of engagement is needed. Study helped to answer the research question: What forms of engagement does the students
experience during the gamified study course? Results show that engagement should be separated from the motivation. Motivational factors affect the expression of engagement but their specific relations are debatable. Qualitative data analysis revealed that during the gamified study course engagement was expressed in 6 different forms: participation, rush, flow, emotional engagement, cognitive engagement, and agentic engagement. All of these forms of engagement expression share conceptual features from educational sciences and game studies. Research results allow claiming that when gamification is being applied in educational contexts, engagement could gain short-term affective features. However, there is also evident that research participants perceive engagement as a momentary experience, and as a long-term sensation. Because of this unified theory of engagement should be explored in future studies where education and gamification are integrated.

References


IMPLEMENTATION OF HYBRID (INTEGRATED) METHODS FOR PLANNING PROCESS OPTIMIZATION

Gedas Baranauskas

Mykolas Romeris University, Lithuania
gedas.baranauskas@yahoo.com

Abstract

Purpose. The present article aims to point out and compare key points and practices of the application of Lean principles and selected tools in combination with project management methods and tools for planning process optimization both on academic and practical level.

Design / methodology / approach. For the purpose of a multi-dimensional theory-based narrative review of the subject with several different methods of data collection are used: documental and comparative analysis, review of scientific literature and systemization-synthesis of information, content analysis. An analysis is based on a qualitative paradigm and focus to supply chain management (SCM), Total Quality Management, Change management and Continuous Improvement theories.

Findings. Results of the multi-dimensional evaluation of the subject suggest that principles of the Lean system and Kanban tools can be successfully applicable and compatible in planning process activities and its optimization both separately and as a part of hybrid (integrated) methods.

Research limitations / implications. The research are of a limited scope from a few points of view: first, it is noticed that a limited quantity of research is made within the field of using hybrid (integrated) methods, especially in the case of academic research performed in Lithuania. So, there is no concrete Measurement Model or step by step guides how these methods should be implemented, what are key issues in this process and how results should be evaluated. In addition, there is a limited orientation to such fields as public and non-governmental sectors and organizations, where the need of planning and overall change management is even more significant and missing. Furthermore, this article is based on a narrative type of review towards a scientific literature where findings and theoretical conclusions are outlined from a holistic interpretation contributed by the reviewers’ own experience, mentioned theories and models by using the method of information systemization. In relation to that, case studies and comparative analysis towards a practical implication are not sufficiently elaborated from the point of theoretical overview, therefore, they have not been within the focus of scientific analysis in this paper. The fourth limitation might be the complexity and the dynamics of a planning process as well as the primary orientation of the Lean system and tools directed to the manufacturing and industry sector.

Practical implications. Summarized and underlying research and its findings may serve as a basis for a relevant input to a further scientific discussion regarding the optimization of planning process and adoption of hybrid (integrated) methods in this or related fields. It addition, it might be useful within a practical implementation of new methods of project or process management and planning.

Originality / Value. The main point of the paper is to underline that there are options to combine different process and project management tools and principles in this specific and complex field as planning. Since planning itself is considered as a continuous activity
throughout the process and is usually carried out dynamically in parallel with a performed task / job, Lean tools combined together with project management application may serve a very useful and effective way to ensure a more structured and, therefore, successful process handling. Moreover, the selected research object and findings are also valuable in terms of the process improvement in public sector organizations. Since the limitations of Lean tools are their lack of diversity in applicability to an ongoing process, as they are rather applied to a moment and static process phase, and limitations of project management are its unclear structure and abstractness, this particular paper points out and analyzes the possibilities of both Lean tools and project management merging as a proper method.

Keywords: hybrid (integrated) methods; planning process; optimization of planning; Lean; Kanban.

Research type: general review.

Introduction

A dynamic and complex business environment, automation of business processes and Generation Z can be equalized to several factors which are considered quite influential. These factors consist of development and activities of various organizations, changes in the attitude towards process management, and an improvement in application of new methods. Lean principles and tools in combination with project management tools or traditional planning tools are a proper alternative solution for organizations seeking for the business process optimization. It is efficient to use this strategy due to a certain preconditional background which naturally encourages using internal resources, proposes a deeper engagement of employees towards a daily working routine, and accelerates introducing the Continuous Improvement culture. Nevertheless, only about 10% of organizations implement main principles and tools of the Lean system and ensure the continuity in the future practice successfully (Salonitis and Tsinopoulos, 2016). Moreover, when focusing on the case of Lithuania, it is important to notice that a scientific discourse on the Lean application in organizations has not been much elaborated so far and a number of studies in this field are of a limited scope, especially in the case of implementing so called hybrid (integrated) methods (Čiarnienė and Vienažindienė, 2013, 2014). Therefore, in this paper the process of planning is taken into account from a deep theoretical perspective because this process type not only influences activities within organizations but also attributes a quite complex content, a high level of integrity with other process types and employees, and a wide scope of usable methods and tools.

The planning phase is an integral part of each organization's project and process management, necessary for the effective implementation of the organization's goals at both strategic, tactical and operational levels. However, main methods and problem solutions of this phase have been focused mainly to the operational production level for quite a long period. This is grounded by the fact that strategic planning as a separate academic discipline was recognized and started to be used only in the mid of the 20th century (Dole and Cervone, 2014). At this point, it is important to notice that along with an increased focus on the strategic planning and its holistic understanding, new challenges have arisen. To be more precise, a too deep focus is switched to the planning process as such instead of strengthening the control of implementation or evaluation of outcomes following the planning; and this may lead to situations with negative influence on firm innovation or incompatibility of long-term goals to the
dynamic environment too (Dole and Cervone, 2014; Zhang and Ge, 2015; Arend, Zhao and Song, 2015). All these listed consequences together with many practical planning tools and methods for planning used in practice indicate the complexity, dynamism and integrity of this phase with other processes in organizations and its wide scope of possible problems. In parallel, the rapidly evolving business environment and globalization requires organizations to increase their competitive advantage, adopt more flexible management systems, and change the attitude towards the content and ways to manage business processes (Serafinas and Ruželė, 2014). The term Lean itself is understood as economical manufacturing or cost saving-effective production in the context of Lithuanian academic research. Accordingly, it has a strong association to the factors mentioned above as well as marks the evolution of organizational management over the past 3 decades (Huxley, 2015). It is recognized that Lean principles and tools are based on the practice of industrial organizations, and, therefore their modifications or combinations should be carefully considered and measured before applying them to service-oriented organizations and similar type of organizations. In addition, it is important to the organization to feature an appropriate level of maturity in terms of both new management process and culture (Urban, 2015). Therefore, the practical situation of Lean validates the argument why only the parts of Kanban’s operating principles, updated or hybrid versions (such as Reactive Kanban, Conwip) or even combinations with other project planning tools (such as Scrumban) are applied in practice for the mentioned type of organizations. Key areas of application include planning of information acquisition and transfer processes as well as visual management. So accordingly to the mentioned, this article aims to reveal and compare practices of application in planning process optimization of the following: Lean principles and specific Kanban tools, project management (Agile) methods and tools, and hybrid (integrated) methods. Key objectives are: multidimensional evaluation of a planning process in modern organizations; review of specific and modified hybrid planning techniques or systems used by organizations; and application of Lean principles and hybrid (integrated) methods with planning systems and methods in organizations. To reach these objectives the following type of analysis are used: analysis and synthesis of scientific literature content.

**Semantic and content evaluation of planning functions and processes in the context of nowadays organizations**

In the scientific literature, planning as such is often referred as a management function in priority or the most important function of a manufacturing system, which determines the content and direction of other management functions (for example, management and control), and is evaluated in both narrow and broad point of view (Jin, Zhang and Shao, 2015). The narrow meaning of the planning process in organizations relates only to the identification of specific operational objectives, the choice of their implementing measures and a clearly defined outcomes plan. However, it is noticed that planning should be evaluated in a few directions: as a continuous, responsive and changing process, taking into consideration the factor of environmental changes; as a developing social factor that promotes specific employee activities, cooperation and involvement into the organization’s activities (Bennett, Kadfak and Dearden, 2016). A total different understanding and level of importance of planning
exists in the context of project management outstandingly, where the planning phase relates to specific activities: project timetable and budgeting, project identification and description, etc. All these activities are summarized in several types of plans, using the concepts of guideline plan and detailed planning (Gagliardi et al, 2015). An important aspect for separation of planning values in organizations and project management is the main characteristics of the project: timeliness (certain duration) and uniqueness. All these factors require abandonment of the concept of planning as a continuous process and shift to the specific emphasis on project activities. In summary, planning is among the four major operational projects. At the same time, it is recognized as one of the main reason for poor project management situations which leads to project delays or price increases and overall so called inadequate performance planning (Gardiner, 2005). From a practical point of view, planning process for production is synonymous with several key activities: production planning timeline and scheduling. In a more detailed way, plan as a result and planning as a process consist the same systematic information need to turn raw or semi-finished products into finished products (Mingrang et al., 2015; Jin, Zhang and Shao, 2015).

Moving forward to the question of the planning problem, it was noted that complex planning processes relate to a number of problematic issues and situations that need to be addressed in the elaboration of the levels of management of all plans. Depending on the nature of the effect and the type of expression, the problem factors can be divided into three categories:

1. External environmental factors. They are indirect but important for the overall effectiveness of the planning stage and, the most important, arise irrespective of the organization (for example prices of raw material, production and process quality, environmental requirements, customer needs and demands) (Zhang and Ge, 2015).

2. Internal environmental factors which have a direct and significant effect for the planning phase. On the other hand, an organization typically is capable of managing and eliminating these factors. Possible example includes human resources and technology network, a communication network, and the soft part: coherence and implementation of planning processes (Dole and Cervone, 2014).

3. Planning methodology. It identifies problematic situations associated with using planning measures. It is noted that the current widespread use of advanced planning systems based on the use of information and communication tools is not able to reflect adequately and does not address decisions in a timely manner in relation to such changes as production volume, consumer demand, market competitors' actions. It is also noticed that the planning methodology might be only partially or not integrated at all with the other processes and systems used in organizations (Feng et al., 2011). Additionally, there are examples in practice that so-called traditional planning methods (for example, Gantt chart) used for managing standard projects (for example, construction of buildings) or Network-based scheduling methods are oriented only to the operational level activities but not compatible with Agile type or complex (hybrid) type of projects in strategic level (Kosztýán, 2012; Feng et al., 2011; Wang, Zhang and Fuh, 2012).

Taking into consideration specific and modified planning techniques or systems used by organizations, it can be indicated that their application depends on a number of factors which are similar to the general planning problems: external and internal organizations environment, level of application of the plan (for example, strategic,
tactic or production-operating), information management, time indicators (for example, for management and synchronization activities), relationships with customer (Stefan and Radu, 2016). On the other hand, it is also noticed that not only the management of the above mentioned factors, but also the choice of the appropriate production operations, the order of their execution, the quality of production facilities and the qualified human resources have a great impact on the overall efficiency and effectiveness of the planned activities (Zhang and Ge, 2015). Coming back to the main planning methods used in practice, their possible categorization is presented in the table below.

<table>
<thead>
<tr>
<th>Type of planning methods</th>
<th>Type of planning tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning methods based on usage of mathematical calculation</td>
<td>Linear programing; Dynamic programing;</td>
</tr>
<tr>
<td>or algorithms</td>
<td>Transportation tables; Fuzzy logic mathematical programming; SIMPLEX method, etc.</td>
</tr>
<tr>
<td>Planning methods based on Computer-aided process planning</td>
<td>Manufacturing resource planning (MRPII);</td>
</tr>
<tr>
<td>systems (CAPP)</td>
<td>Advance planning and scheduling (APS); Supply chain management (SCM); Capacity</td>
</tr>
<tr>
<td></td>
<td>requirements planning (CRP); Solver from Excel, etc.</td>
</tr>
<tr>
<td>Planning methods based on process / project design in future</td>
<td>Ideal state action planning method; The scenario tree based multistage stochastic</td>
</tr>
<tr>
<td></td>
<td>programming model; The scenario planning methods; Future-based design method (FBD),</td>
</tr>
<tr>
<td></td>
<td>etc.</td>
</tr>
<tr>
<td>Planning methods based on complexity and integrity</td>
<td>Integration of process planning and scheduling (IPPS); Distributed process planning</td>
</tr>
<tr>
<td></td>
<td>(DPP); Design structure matrix / Dependency structure matrix, (DSM), etc.</td>
</tr>
</tbody>
</table>

Source: Composed by the researcher and based on resources: Zhang and Ge, 2015; Kosztyán, 2012; Mingrang et al, 2015; Feng et al. 2011; Stepchenko and Voronova, 2014, Yang et al, 2015; Stefan and Radu, 2016.

The classification of the above-mentioned planning methods is conditional and assists in distinguishing the general trends and dynamics of the current period in research area. Of course, it should be mentioned too that traditional planning tools as Gantt chart or network planning tools (for example, CPM, PDM, GERT) are still recognized and widespread in practice (Ong, 2016). It has to be noted that in the evaluation period, the concept of planning and the choice of methods in organizations is determined by prevailing tendencies and the application of combined solutions - the use of Lean system and similar hybrid (integrated) methods (for example, Kanban, Scrum, Scrumban, Agile, GT, etc.) (Berlec et al, 2014).

**Content, dynamics and hybrid (integrated) methods of processes and project planning activities**

As stated above, the planning phase is essential for each project or process in organization, characterized by its high complexity, dynamics and problems. Of course, a clear separation (in the theoretical sense) between these two types of activities is
determination accordingly to differences in the concept of planning, methods, and problems. On the other hand, planning in scientific literature is often regarded as a separate business process, so in terms of evaluating this phase in the context of process and project management, we characterize a broad (holistic) and limited meaning. Retrospectively, the beginning of the emergence of advanced planning systems is associated with the 20th century. The 1990s and the qualitative changes in the field of information technology at that time subsequently created the conditions for new, interactive and computer systems based on the process of planning and management of methods and systems, and the emergence of combined solutions for the saving of production methods of expression (Burgis, 2014; Lukic et al, 2017). The importance of traditional business management systems, including their inability to tackle planning challenges in the context of global competition, is also crucial. It is identified as one of the main reasons for integrating specialized, intelligent planning systems or their individual modules into existing business management systems. At the same time, we can talk about the need to move from pre-planning to warehouse to real needs assessment and planning (Burgis and Zakarevičius, 2014; Zühlke et al, 2017).

Beginning with a narrow assessment, it is important to discuss the methodology of project management: depending if the project is managed according to the Waterfall, Agile or hybrid project management methodology, the planning phase is differently assessed. The meaning of the planning stage according to the methodology described is given in the table below:

<table>
<thead>
<tr>
<th>Technique</th>
<th>Place and meaning of the planning stage</th>
<th>Result of activities in the planning stage</th>
</tr>
</thead>
</table>
| Waterfall       | Place: 1 of 5 process stage  
Meaning: completed and independent stage, do not react to the changes of environmental conditions, carried out in conjunction with the design scope of the project.  | Final project management plan and related documents (lower level of plans).                                  |
| Agile           | Place: 1 of 5 process stage  
Meaning: repetitive and constantly changing phase. Changes in process are caused by changes in environmental conditions. Organizational culture, communication processes and human resource has a great impact too. | Project management plan which is periodically updated.                                                        |
| Hybrid (integrated) | Place: 1 of 5 process stage  
Meaning: Complex type of stage, which is implemented gradually - firstly by splitting the project into separate components according to disciplines or functions, and planning the implementation of individual components later. | Work Breakdown Structure, WBS) and plans for the implementation of individual works (activities). |

Source: Composed by the researcher and based on resources: Robins, 2016; Baird and Riggins, 2012.

Essential differences between above indicated project management technique can be the meaning (volume) and output of the planning phase. Based on the traditional Waterfall methodology, the planning phase has clearly defined limits and a specific
output as a project management plan and other related documents. A coherent implementation and static plan are an integral part of the results of this technique’s planning phase. The opposite approach to planning can be identified in Agile type and Hybrid-type techniques (Serrador and Pinto, 2015). The planning phase in this case is not completed at the beginning of project, but dynamic, ongoing and responsive, with outputs of a different form, for example, Work Breakdown Structure. It is noted that during the planning phase, using mentioned type of plan and managing the whole project in a hybrid methodology, positive results are obtained in way of high level, detailed implementation plans, shorter development times and faster response to environmental changes (Baird and Riggins, 2012). To sum up, it should be stated that in project management, during the planning phase, elaboration in form of a detailed analysis of the original idea of the project and the assessment of individual aspects is made in priority. In most cases, it is done by using an already mentioned decomposition or a SWOT method, as well as by subdividing all activities into two internal process groups: basic and auxiliary processes. At the same time, one of the main goals of this phase is not only the preparation of a detailed implementation plan (at operational level), but also updating it in a timely manner and making it compatible with the organization's strategy (Project Management Body of Knowledge, 2013).

Moving to a broader assessment of business process planning, it is noticeable that the planning stage or related individual actions can be identified at different hierarchical levels of management, in almost every basic and auxiliary process (Lukic et al, 2017; Bae et al, 2014). It is also noted that planning is recognizable and important not only during the current period in the organization, but also for the modeling future processes in accordance with the concept of Continuous Improvement, so called Kaizen and related methods for the development of Lean principles and system (Čiarnienė and Vienažindienė, 2014; Oropesa-Vento et al, 2015). The planning is found on the basis of this concept, based on the Shewart and Deming ideas and a cycle of control. In practice, in process management activities it is used as one of the stage of Continuous Improvement cycle.

In relation to hybrid (integrated) methods for planning process optimization, combination of the Kanban as one of Lean systems process planning and management tool and the Scrum as one of project managements tool is worth to mention (Ighravwe and Oke, 2017; Kuhrmann et al. 2017). This example of harmonization marks the shift from the traditional Waterfall project management technique to Agile and Lean principles based project management. Although the scope and characteristics of the named methods are different, there is a growing trend or popularity of such hybrid (integrated) methods project management methods such as Scrum-XP Hybrid, Custom Hybrid, or Scrumban (Stoica et al, 2016, 10th Annual State of Agile™ Report, 2016).

Adaptation and compatibility of Lean principles and methods with planning systems and methods in organizations

The term Lean is polysemantic and is used to define both individual methods and complexity of them, both the philosophy of management and the system of specific management principles and values. In addition, the term of Lean Management is not only determined by technical practices, but also incorporate so-called soft practices -
behavior and actions of employees and management (Serafinas and Ruželė, 2014; van Assen, 2018).

From a historical point of view, it is noted that the emergence of economical production is associated with the ideas of Tailor's scientific management or Ford's production organization, which were transferred and successfully adapted to the postwar Japan automotive industry, but not as template but with significant modifications, adding emphasis not only to ensuring process efficiency, but also a strong orientation to customer demands, quality assurance and human factor management in manufacturing (Aartsengel and Kurtoglu, 2013). The main assumptions of planning improvement under the system of economical production can be identified – the initial orientation of the planning process to the client: bringing the value to the client planning; the specific content of the planning process (complexity, high integrity); high requirements for the planning process and its participants. All these mentioned factors, in relation to economical production, determines relevant process improvement points and goals at the same time: the duration of the process is aimed to maximize the optimal procedural length of the planning process; process progress is aimed to standardizing the progress of the process and ensuring timely and well-defined presentation of information related to the planning process; action plan is aimed to minimize the occurrence of deviations, procedural errors and other types of problems. In addition, the modern business environment and organizations add that it focuses on gaining or maintaining competitive advantage and adapting to the changing market and customer needs. This determines that it is necessary to continuously improve all processes in the organization, apply the latest technological advances, both in production and in management (Burgis and Zakarevičius, 2014). At this point, we can distinguish the two main groups of measures that organizations use to achieve the above mentioned goals: Lean system and Advanced Planning Systems. It should be noted that although the causes and circumstances of the two process improvement methods are similar and interrelated (for example, static production and management processes, inefficient use of resources, elimination of practice and general process optimization needs), but in practice these methods are often implemented separately, by eliminating possible benefits from the use in integrated or parallel ways. In the case of the application of process improvement techniques, one of the main tools for this methodology, and also the Toyota Production System (TPS) tools, is Kanban. This is in practice well known planning and control tool, used in the multistage supply or production chain management, with the principles of consistent and optimal functioning of individual nodes, guaranteed by a special mark and card system (Ordysiński, 2013). At the same time, Kanban helps standardize and simplify the entire process, speeds up information transfer processes, and boost overall production efficiency and productivity (Al-Baik and Miller, 2015). The usage of this tool lets to optimize and control all process so that the materials used in the production of certain products reach the individual stages only then their real need arises. This feature of Kanban lets organizations in use to avoid the traditional, so called production by plan issue and need for Push system, where the individual stages of reloading and resource retention, respectively, leading to a longer lead time delivery (so called Lead Time) and a lower level of customer satisfaction. Thus, using the above-mentioned planning tool, the transition to the Pull System is more effective and with the use of visually visible signs (cards or planning tapes) a consistent production
process, more efficient use of resources and timely delivery of products are reached. In the aspect of historical development, Kanban has long been concerned only to control and optimize processes in supply chain or production chain located in manufacturing or some other industry type organization. However, it is currently widely used in planning both work and time at both on team and individual level and, most important, in organizations of various profiles and sectors. By using interactive digital techniques relevant applications as the transition to electronic Kanban (e-Kanban) version is made (MacKerron et al. 2014; Oh and Shin, 2012). Such versions are currently often used in conjunction with project management and planning methods (for example, with Scrum) or other business planning control systems (for example, ERP). It is added that some Kanban modifications are also found in Advanced Planning and Scheduling systems: Oracle's; JD Edwards and e-Business Suite, IFS AB, Infor ERP LN, SAP ERP, Deltek Costpoint, and Microsoft Dynamics AX. The application of E-Kanban also is confirmed by Toyota’s example – it was successfully applied to external processes as working with suppliers (Ordysiński, 2013).

However, it is important to mention that research emphasized that it is still more effectively used in traditional production profile organizations, whose activities are based on separate processes with sufficiently stable, well defined environment and need to provide a limited number of services or products. In todays, especially project-based organizations, not only challenges for financial or human resources, production technologies sides exits, but there are many other factors as extremely dynamic environmental conditions and the need for high level management of information. Here can also be mentioned a shortened product production cycle, constantly changing consumer needs and diversification of activities also are influential (Barba, 2013; Ordysiński, 2013). It is agreed that implementation of mentioned tools, which organizations in practice actively use for optimization and development processes, is still under theoretical consideration and still seems to face similar problems, but both representatives of organizations and researchers confirm that their parallel implementation can reduce the number or impact of such problems. Other possible solutions are the following: the use of process evaluation and Enterprise Resource Planning system or other systems as a coherent process rather than a temporary project, as well as assessing not only the technical nature and indicators but also the social changes and climate in the organization (Chofreh, 2014; Hornstein, 2015).

Discussions

The general review of scientific literature has confirmed the position that the planning phase in the context of process and project management is still an essential step both in the current (ongoing) period and in the long run period. The main difference at this point is a change in forms of expression and volume, the practice of adapting hybrid (integrated) methods. But it is still an open question how this new type of methods is applicable in practice and how to measure its efficiency. Moreover, it is important to notice that at the planning stage a scope, design and process content are characterized by a high complexity, integrity and impact on the organization. Hybrid (integrated) methods are becoming increasingly widespread not only due to these reasons but also due to its great impact on the field of improving efficiency of planning activities and overall process standardization in organizations. On the other
hand, a comparative analysis and research about hybrid (integrated) methods and their application possibilities in different type and sector organizations are missing. Nevertheless, the practical application confirms that individual Lean system tools (for example, Kanban) are successfully used in the combination with project planning and management tools (for example, Scrumban). Accordingly, there is a need to figure out if the practical application of these methods really confirms the theoretical insights and models as follows: specific properties of supplement, high orientation and effective use of existing resources, easy implementation and maintenance, probability of reaching more sustainable and long-term effects.

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SOME ASPECTS OF SOCIAL INNOVATION AND LEGAL STATUS OF SOCIAL ENTERPRISE

Tomas Lavišius

Mykolas Romeris University, Lithuania
lavisiust@gmail.com

Abstract

Purpose. The purpose of this paper is to clarify the definition of social innovation and its relation to the status of social enterprise as a legal concept.

Design/methodology/approach. Methodologically this research focuses on the legislation of European Union and some recent initiatives that were undertaken by Lithuania and other EU Member States in the area of development and facilitation of social entrepreneurship.

This research utilizes the qualitative research methods. The textual analysis method has been used to examine the content and meaning of legal texts and other documents, as well as their structure.

Findings. The social economy and social enterprises offer specific tools that can be used to tackle important social challenges. Moreover, they can contribute to reducing the social divide and accelerating innovation while pursuing their overarching objective of providing a service to society.

Social enterprise is not a new organizational form, but a result of evolutionary development of non-profit or voluntary organizations. To create social value, social enterprises have developed innovative strategies, new resource configurations and governance structures. It should be stressed that usually innovation process in commercial enterprises means the creation of new products and services, however, in social enterprise innovation means the reconfiguration of existing products or services to create social value.

Research limitations/implications. The scope of the research covers the examination of the EU legislation regulating this area. It also covers the comparative analysis of social entrepreneurship legal regulation in the neighbouring Baltic countries – EU Member States – Latvia and Lithuania that shows current progress in development of legal basis for social entrepreneurs.

Practical implications. In 2015, the Ministry of Economy of the Republic of Lithuania adopted the Conception of Social Entrepreneurship. So far, this is the main document providing the common definition. However, it is rather broad and not very well known. Currently Lithuanian Government works on several initiatives to promote social entrepreneurship, i.e. Draft Law on Social Business, which, however, is not published yet. Therefore, the results of the research can be useful improving the national legal framework on social entrepreneurship.

Originality/Value. Social innovations and social entrepreneurship legal preconditions are quite new definitions that lack conceptual review to become more understandable. This research looks for the legal preconditions of social entrepreneurship and social innovation in order to clarify these definitions in the way that could be useful for further research and practical application.

Keywords: social innovation; social enterprise; social business; social entrepreneurship.

Research type: general review.
Introduction

Social enterprises have gained in importance in European and national policies in recent years. There is a growing awareness that they create sustainable and inclusive growth and stimulate social innovation (GECES, 2016). By focusing on people as much as profit, they foster a sense of social cohesion and promote the common well-being.

The potential of the social economy and social enterprises has not yet been fully unleashed. Innovative approaches to the social challenges we face are especially important at a time of public budget challenges. Therefore, much more needs to be done at all levels of public policy to optimize the framework conditions and funding support for social enterprises.

In order to foster the social economy, we have to develop an environment that facilitates access to funding, adequate legal framework, and awareness on the national and local level. The definition of social innovation and its relation to the status of social enterprise as a legal concept can significantly contribute to this purpose.

The European Commission defines a social enterprise as an operator in the social economy whose main objective is to have a social impact rather than make a profit for its owners or shareholders. It operates by providing goods and services for the market in an entrepreneurial and innovative fashion and uses its profits primarily to achieve social objectives. It is managed in an open and responsible manner and, in particular, involves employees, consumers and stakeholders affected by its commercial activities. It should be noted that the Communication of the Commission doesn’t emphasize any specific form of legal entity as a social enterprise.

So far it is up to the particular country to decide whether the social enterprise is supposed to obtain special legal form or not. The main goal of this research is to clarify the definition of social innovation and its relation to the status of social enterprise as a legal concept.

Social enterprise and two elements of its definition

The social element of definition. One of the greatest challenges in understanding social entrepreneurship lies in defining the boundaries of what we mean by “social”. Generally, the term “social” refers to initiatives, which aim to help people. Traditional entrepreneurship is commonly associated with profit motive, and social entrepreneurship, with an expression of altruism. Nevertheless, in reality, the motives for social entrepreneurship can also include less altruistic reasons (e.g., personal fulfillment). The distinctive social domain of social entrepreneurship can be distinguished through creatively combination of resources that usually social entrepreneurs themselves do not possess, in order to address a social problem and thereby alter existing social structures (Mair and Martí, 2005).

Some researchers stress that research of social entrepreneurship has matured beyond definitional debates and embraced the analysis of institutional and

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1 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Social Business Initiative. COM (2011) 682 final, 2.
organizational processes associated with their creation and management (Doherty et al, 2014). It should be stressed that general analysis of social entrepreneurship literature contributes to important debates concerning the role of markets, government and social society. There is a need to build on existing research that distinguishes social enterprise as an organizational form and to use recent theoretical developments to find the ways of balancing the positive and negative effects of hybridity.

The entrepreneurial element of definition. Various authors during different periods suggested that the focus of entrepreneurship research should be the entrepreneurial process and entrepreneurial behavior. Today we see, and lots of authors recognize that this phenomenon is far more complex and heterogeneous. Nowadays number of researchers study entrepreneurial process outside of the business sector, concentrating on the role of entrepreneurship in society. Researchers focus on the personality of social entrepreneurs, their behavior in particular processes. However, some of new researches argue that during the research on social entrepreneurship focus on the social entrepreneur is actually wrong and has to be put on the entrepreneurial process. A number of researchers emphasize that entrepreneurial process itself is more important than “how” entrepreneurs act. It allows us to differentiate between social initiatives and social – entrepreneurial initiatives (Mair and Marti, 2005).

We see that not only not-for-profit nature of social entrepreneurial activities should be researched as a distinctive feature of social entrepreneurship, because social entrepreneurship can take place equally well on a not-for-profit basis or on a for profit basis. Usually the set-up of social enterprise is dictated by the nature of the social needs addressed, resource availability, and the ability to capture economic value. Therefore both, social and entrepreneurial elements of the definition are important.

Hybridity and social innovation

Recent studies of management show that social entrepreneurship faces tensions because of its dual mission and conflicting institutional logics. Social enterprises usually pursue the dual mission of achieving both financial sustainability and social purpose and, therefore don’t fit neatly into the conventional categories of private, public or non-profit organizations (Doherty et al, 2014). Therefore, focus on the nature of social enterprise organizational forms and how these forms are explained by hybridity, and social innovation, is important speaking about the phenomenon of social entrepreneurship.

Mair and Marti (2005) stress that the interaction of social enterprise and the context in which it operates is crucial to understand the process of social entrepreneurship. It is also important to understand the structure of social capital, how it can be built, increased, and maintained. Usually, social enterprises have their particular role within the system. Therefore, we see that the interaction between social enterprise and the context could help us to understand and explain why and how social change is possible.

We think that if a specific state does not have a well-established social business market, it is first necessary to focus on infrastructure formation, because in the
absence of proper infrastructure, individual social business initiatives lead to market failure.

Therefore, we have to bear in mind that hybrid organizational form means the organizational form as structure and practice that allow the coexistence of values from two or even more categories. Hybrid organizational forms therefore draw on at least two different sectoral paradigms and value systems and relate to the emergence of new institutional forms that shape traditional conceptions of economic organizations (Doherty et al, 2014). In this context we think that social innovation and hybridity of social enterprise are therefore the aspects of social enterprise that create the paradigm of social entrepreneurship.

Researchers as Fedele and Depedri (2016) remark that in the aftermath of the economic crisis, some organizations, such as cooperative and socially oriented enterprises may play a key role in restoring people’s confidence. It is noticed that such organizations are less willing to exploit their workers, customers, and in general, stakeholders. Cooperative and socially oriented enterprises may help increase both the wellbeing of individuals and economic efficiency. So, the welfare of citizens and producers may be positively affected by the presence of different firm types in the same sector of production.

However, costs of collective decision making usually increase in the heterogeneity of a cooperative’s members. Apart from the direct costs of the decision-making process, further costs can arise from influence activities in organizations (Herbst and Prüfer, 2016). It is quite common in the most countries that, shares of companies are traded on stock exchanges. Moreover, Mikami (2016) argues that shares of membership in cooperatives are rarely traded in an open market traditionally supposing that the trade of membership shares is inappropriate in terms of cooperative philosophy, which has been heavily influenced by ideology, and usually restricted by cooperative law.

Here we see that it is quite difficult to draw one tendency. However, the diversity of options brings social enterprise sector to more innovative approaches not only creating socially innovative services but also management procedures within the existing legal forms.

Researchers (Doherty et al, 2014) stress that significant growth in interest in social enterprise in many countries can be attributed to the changes in the nature of philanthropic giving. Formerly donor-dependent organizations have been pushed to seek more commercial sources of revenue. Also, new models of public service delivery have created market opportunities for new entrants, such as social enterprises. The other factor is that there is an interest in alternative economic systems and economic justice. We think, however, that only social innovation could become a solution to market failure in the environment of rising inequality and bring the nature of philanthropic giving to the new level.

European Commission (2016) examined that many social innovators operate mixed businesses models that attempt to combine financial sustainability with social motivations. European Commission’s study shows that there is a significant variation in how non-state led activities address social challenges are defined across Europe. For this reason, social purpose collaborative economy should not be associated with a single organizational model. We see that the social purpose collaborative economy is not limited to a specific sector or societal issue – it can be applied to a range areas or challenges.
Also, we don’t have to forget that social enterprises (e.g. cooperatives) increase the stakeholders involvement in their governance. So, the democratic principles and community-based structures are part of the innovative management of social enterprise. Two opinions could be found regarding that matter. Doherty (2014) stresses that stakeholder-involving structures facilitate greater accountability, on the other hand, it can cause some tensions that impact governance process of social enterprises. Really important is the impact of the respective values of different stakeholder groups (e.g. employees, volunteers, etc.), because different stakeholders could have different views concerning the balance between commercial and social mission. However, stakeholder theory states that incorporating of different stakeholders into decision-making process makes organization to be more likely responsive to broader social interests and not only the narrow interests of one group (Cornforth, 2004). We think that both theories have a right to exist because they reflect the most complicated part of social enterprise management caused by its hybridity. Only innovative approaches to management of social enterprise and clearer legal frameworks could help to solve this problem.

As a social policy implication, governments should take steps to introduce laws that encourage the entry of social enterprises in social services sectors, and the outsourcing of social services from public bodies to private social enterprises – a common feature of many European countries – should be further encouraged (Fedele and Depedri, 2016). We also think that the question should be raised how to make the existing legal environment more favourable starting with the identification of what legal forms businesses can be considered as social enterprises. and for each of these legal forms for businesses to prepare detailed guidance on how to run a social business, considering different legal forms.

The innovation in social entrepreneurship affects access to social services (education, healthcare, and others) and general welfare. Fedele and Depedri (2016) found out that individuals are more likely to have access to social services within mixed economy. Usually general welfare is larger within mixed economy. Where public policies in support of social enterprises are developed, the access to social services is further enhanced.

Generally speaking, social enterprise is not a new organizational form, but a result of evolutionary development of non-profit or voluntary organizations. To create social value, social enterprises have developed innovative strategies, new resource configurations and governance structures (Doherty et al, 2014). Usually innovation process in commercial enterprises means the creation of new products and services, in social enterprise innovation means the reconfiguration if existing products or services to create social value.

Fedele and Depedri (2016) stressed that mixed economies are both more effective and efficient than market economies when the ideological costs are relatively high and individuals’ preferences for different types of firms are heterogeneous. We can agree on that. However, the behaviour of individuals can be different during the economic upturn and economic downturn.

The same authors suggest that policies in support of social enterprises would help clients satisfy their ideological preferences. Often, governments play an active role by guaranteeing tax exemption, subsidies and public transfers to social enterprises. These measures have redistributive effects. A downside of this is that subsidies distort
market and decrease the efficiency of the economic system. Nevertheless, when the public funding shrinks due to crisis, efficiency becomes of central importance for governments. Public transfers from for-profit firms to social enterprises are not desirable since they harm efficiency, so governments must find alternative solutions that encourage voluntary transfers to social enterprises rather than magnifying taxation on for-profit enterprises. This way, for-profit enterprises may increase the mixed economy effectiveness without compromising efficiency.

Therefore, we think that social economy and inclusive economy could decrease income and wealth inequalities, and contribute to sustainable job creation and social innovations.

**The role of institutional support for social innovations**

Some authors notice that social entrepreneurship research lags behind practice (Stephan et al, 2015). The importance of social entrepreneurship varies across countries, but generally, there is lack of information about innovation in this area and factors that may drive national differences of social innovation.

Social enterprises are often partly dependent on grants, financial aid, or loans issued under favourable conditions by governments, charities or philanthropists. Therefore, it is important to align the supply and demand of capital for social enterprises. Generally, the issues relating to the funding of social enterprises are not of a legal nature, but the need for funding and the relationship between shareholders/stakeholders’ interests and a social mission will lead to legal consequences. The second challenge: balance of the interests usually is tackled by setting out according rules in various corporate documents (Timmerman et al, 2011). Here we can ask if the institutional support for social innovations has such importance.

Stephan et al (2015) argue that the institutional configuration perspective recognizes that human behavior is usually shaped by the constraints, incentives, and resources provided by formal and informal institutions. In respect to this concept, some researchers provide the results of quantitative research in order to check several hypotheses. One of their hypotheses is that government activism at the national level is negatively associated with the likelihood of individuals engaging in social entrepreneurship. The researchers find out that in contrast to this hypothesis, government activism by providing resource support for social entrepreneurs can enhance social entrepreneurship. These resources can include grants, subsidies, and other direct funding, also assistance, endorsements, networking, etc. In this way, governments and social enterprises can be regarded as natural partners to achieve social goals, because a key role of government is to provide public goods and to look after the welfare of citizens, while social enterprises are being created to address social needs of society. Of course, we can agree that support for social entrepreneurs can enhance social entrepreneurship. Nevertheless, we do not have to forget that according to the European Commission, social enterprise operates by providing goods and services for the market in an entrepreneurial and innovative fashion and uses its profits primarily to achieve social objectives. Therefore, we think that only limited support can trigger the entrepreneurial and innovative capacities of social enterprise.

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1 Ibid.
The findings of Stephan et al (2015) suggest that national context drives individual engagement in social entrepreneurship mainly through resource-based mechanisms and supply side motivational influences and less through incentives arising from demands.

We think that in case of Lithuania and some other states it can be illustrated by the example that despite the lack of legal recognition of social business as such, there is a movement of so-called *de facto* social businesses. They represent the market subsector of social economy, i.e. economic activity seeking social benefit by selling the goods or services on the market at economically significant prices, being exposed to economic risk.

**Current progress in development of legal basis for social entrepreneurs**

Legal and institutional frameworks bring clarity by defining the nature, mission and activities of social enterprises. By granting to social enterprises recognition and visibility through the creation of framework laws or the implementation of national strategies, they help policy makers to more effectively target their support (OECD/EU, 2017).

Recently updated the European Commission report on social enterprises and their eco-systems in Europe illustrates the state and development of social enterprise, and pays attention to the findings of recent empirical and theoretical research on social enterprise at the international level.

The report shows that in the year 2016 social enterprises are still conceived in significantly different manners by national legislatures, policy strategies, academics and social entrepreneurs. In addition, there is a tendency to mix two main approaches. The first approach aims to identify the key features of social enterprises. The second approach designates general entrepreneurial dynamics oriented to social innovation and social impact, and addresses the issues of social entrepreneurship in general more than the issues of social enterprise (European Commission, 2016).

Therefore, we think that social business development in Lithuania also should take place in the following two directions. Firstly, it could be involvement in dealing with social problems for the purposes of promoting social enterprise as private business initiative. Secondly, it could be application of business models, as well as social innovations, for the purposes of encouraging non-governmental organisations and companies of other legal structures to get involved in social entrepreneurship.

From the legal point of view, the European Commission (2016) states that legislation designed for social enterprises could succeed in boosting social enterprise replicability if a deep understanding of social enterprise dynamics backed discussion on new legislation. Therefore, strong engagement by the social enterprise community in the process of drafting of new laws is required. On the other hand, it could fail boosting social enterprise replicability if it would introduce a top-down approach, with no active engagement on the part of the social enterprise community, and if legislation introduced excessively rigid constraints or would transplant from other countries/contexts with a significantly different history/tradition.

Recently, the Lithuanian Government adopted several measures to promote the social entrepreneurship. The Government’s Action Plan foresees the adoption of the
Draft Law on the Social Business. This way the Government seeks to define the criteria and forms of social business, as well as the support measures in order to boost social economy. So far, it is difficult to say whether the adoption of new law will define a new form of legal entity, i.e. some kind of social business enterprise, or it will define some legal status of social enterprise without creating of new legal form.

Some new initiatives took place recently and in other countries. In 2017, the Latvian Parliament adopted new Law on Social Business, which foresees that a social enterprise is a limited liability company that has received the status of social enterprise pursuant to this law and that performs operations with a positive social impact. The status of social enterprise can be assigned to any limited liability company as far as the majority stake of it does not belong to one or more public entities (Latvijas Respublikas Saeima, 2017).

In comparison, both, Lithuanian and Latvian initiatives are timely, but so far Latvian development of social entrepreneurship is more advanced. Latvian Parliament already recognized the status of social enterprise by adopting special law. The actions, foreseen in Lithuanian Government’s Action Plan, so far are far less concrete, because the Draft Law on the Social Business is not published yet.

So far, the above-mentioned initiatives are absolutely new and have no results that could by objectively analysed yet. Nevertheless, these initiatives show proper attention of the governments towards the development of social enterprise and social innovation in general.

Conclusions

Despite the innovation in commercial enterprises means the creation of new products and services, the social innovation can be described as the reconfiguration of existing products or services to create social value.

The status of social enterprise depends on social innovation whether it is recognized as a specific legal entity, or not, because social enterprise is not a new organizational form, but a result of evolutionary development of non-profit or voluntary organizations. To create social value, social enterprises have developed innovative strategies, new resource configurations and governance structures that allow social enterprises to contribute to reducing the social divide and accelerating innovation while pursuing their overarching objective of providing a service to society.

The comparative analysis of social entrepreneurship legal regulation in selected EU Member States showed that the legal preconditions of social entrepreneurship and social innovation exist, and current progress in development of legal basis for social entrepreneurs is positive. However quite underdeveloped and have to be developed further in order to allow social enterprises effectively use specific tools to tackle important social challenges.

Social economy and inclusive economy could decrease income and wealth inequalities, and contribute to sustainable job creation and social innovations. Therefore, future research should focus on not only formal institutions, but also informal institutions/culture, and configurations of both types of institutions in order to understand the scope and the content of social innovation.

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THE COMPLIANCE OF LITHUANIAN VOCATIONAL AND HIGHER EDUCATION SYSTEMS WITH THE NEEDS OF UNIFORMED (STATUTORY AND MILITARY) SERVICE

Svajūnė Ungurytė-Ragauskienė

Mykolas Romeris University, Lithuania
svajune.unguryte@gmail.com

Abstract

Purpose – to examine how should the human resource policies in uniformed services interact with vocational training and higher education policy. Also, it’s important to analyze, whether the vocational training / higher education of prospective officers is sufficient and effective. Uniformed services perform vital functions to the state and society, and they need personnel, which is both highly trained and educated, but also loyal.

Design/methodology/approach. There had been used scientific literature deduction (drawing conclusions from the available information), analysis (obtained data analyzed separately), analogy (comparison of data with each other), generalization (the main features complex generalization), induction (from individual elements went to a general conclusion), comparison methods. Theoretical analysis was used in order to see if multiple strategies of higher and vocational education for the needs of uniformed services improve the quality of education, from perspectives of (i) vocational training or higher education institutions and (ii) students and cadets. 12 experts – police ir military officers – were interviewed for the purposes of this study.

Finding. In Lithuania, each statutory institution has separate educational institution and provides for their duration and content. There is no institution that coordinates and evaluates the process of qualification improvement of the officers at the state level. Education system between statutory and military officers is fundamentally different. In Lithuania, the police officers pay tuition for higher education themselves. Vocational training in statutory service is too short and not sufficient, the necessary training base is not provided.

Research limitations/implications. Only two uniformed services (police and professional army) were investigated in the survey. Only a small percentage of officers were interviewed, whose answers cannot be considered as a whole, deeper and more comprehensive studies are needed. Due to economic situation changes, political decisions and on other external factors, officers' assessments may change. However, the data obtained are useful in view of certain general trends and weaknesses in providing further guidance to the study.

Practical implications. It should be emphasized that there is no institution of education in Lithuania, e.g. college, that prepares B level officers (higher non-university education), although they hold a large part of the officers. This shows that more attention is needed to pay for vocational education, the length of vocational training should be extended. Those insights reflects the practical implication of the study.

Originality/Value. There is the lack of studies that analyze the quality of vocational training and higher education of the uniformed officers in general. This study shows that requirements (state of health, physical fitness, etc.) between two regimes are similar, but there are radical differences in multiple strategies of higher and vocational education.

Keywords: uniformed services, higher education, vocational training.

Research type: research paper.
Introduction

In Lithuania there are two categories of uniformed services: statutory and military. The military service regulation is completely separated from other public service regulation, while the statutory services regulation (e.g. police, penitentiary, border guard) does overlap with the general civil service regulation and also the diplomatic service, despite not being a uniformed service in the academic sense is considered to be a statutory service. Constitutional purpose (article no. 141) of the statutory or in otherwise - paramilitary service is to protect and control the state border, to ensure public order, investigation of crimes, protection of state secrets and etc. Statutory agencies in our country monitor and supervise the implementation of laws that prevent or disclose crimes (Laurinavičius, 2002). In Lithuania, there are seven statutory public services (see Figure 1). The national defense system is responsible for the defense of the state against aggression and the implementation of international obligations is no less important in the management of the country. Voluminous military exercises are constantly being organized in Lithuania, the reserve of the army is constantly increasing, in 2015 conscripts army was returned.

Due to special regulation (Statutes), strict hierarchical subordination, special requirements, specific powers and special social and other guarantees, threats to health and another aspects the statutory service is often mistakenly identified with military service. Although many features are equally characteristic to the services, the main criterion separating them is the different constitutional purpose. In 2004 (case no. 51/01-26/02-19/03-22/03-26/03-27/03) Constitutional Court of Lithuania declared that statutory or otherwise - paramilitary service cannot be identified with the military institutions of the national defense system and their officers cannot be identified with the national defense forces officers. The Court explains that the constitutional purpose of the paramilitary services is related not with defense of the state against aggression and the implementation of international obligations but with other areas which are important to the security of the state and society. On the other hand, such paramilitary services may, besides their main functions, be instructed to defend the state during the war, to help the army implement other tasks related to state defense and its international obligations, and their purpose determines the necessity to organize their activities on the basis of statutory relations.

Source: developed by author

Figure 1. Uniformed services in Lithuania

- Institutions of Internal Affairs Ministry (police, VIP protection, etc.);
- Prison department;
- Customs;
- State Security Department;
- System of Defense*;
- Diplomatic service;
- Special investigations service.

* only civilian statutory civil servants
Such separation of the uniformed services makes it possible to compare them with each other, especially in aspects of human resources management (hereinafter - HRM). One of the most important processes in HRM is training of the prospective officers. In order to more efficient work of statutory services and transforming the structure of the national defense system, it is very important to have and be able to maintain skilled and motivated staff which is capable of meeting the objectives and helps to achieve strategic organizations' goals. Although the process is complex and requires considerable resources, officers' training is an integral part of the statutory and military HRM. It should be noted that in Lithuania, the preparation of prospective officers is the responsibility of individual ministries and their educational institutions, which means that educational system is liberalized. This study examines the training policies of police (one of the statutory services) and military officers. According to the association of Lithuanian Higher Education for the General Reception (hereinafter - LAMABPO) data, there were more than 200 people who wanted to study at the Lithuanian Police School (hereinafter - LPM) and 131 applicants were selected in 2017. During the last year, 39 persons wished to upgrade their qualification at the Faculty of Public Security of Mykolas Romeris University (hereinafter - MRU). Although past year was unprofitable to many universities in Lithuania, even a little more students than in 2016 were adopted by the General Jonas Žemaitis Military Academy of Lithuania (hereinafter - LKA). According to LAMABPO, in 2017 LKA had 61 cadet.

Analyzing the international literature about the education and recent works of foreign researchers, the tendency to associate preparation in general with the New Public Management (hereinafter – NPM) theory can be noticed. According to S. Tolofari, as with every other sector, the education sector was also reformed together with the coming of this concept. Performativity, focused on outcome measurement appeared to be the key concern of school leaders (Tolofari, 2005). In 2010 J. J. W. Powell and H. Solga revealed that given ongoing economic, political and social transformation, skill formation systems where under pressure to change. This is acknowledged in European declarations – Bologna for higher education and Copenhagen for vocational training – and various national reform processes (Powell, Solga, 2010). According D. Herron and J. Harford (2016), the reforms were promoted politically by a series of reform-minded politicians and officials in tune with the need for education changes to accompany and contribute to economic development. The field of planning for human-capital development was the underlying policy priority and was based on a market oriented understanding of education and training policy to complement this change in direction (Herron, Harford, 2016). It is interesting, that in 2017, A. Hiedemann, G. Nasi and R. Saporito stated that NPM (product-dominant logic) paradigm loses popularity and New Public Governance (service-dominant logic) now is on top. According to the authors, this contrasts with the currently dominating practice in the business sector whereby executive education is approached more as a product rather than a service. The basic benefit of this approach is that public sector managers are asked to manage services, not products (Hiedemann, Nasi, Saporito, 2017). It is also important to notice, that in 2016 a study where the extent to which the characteristics of public administration degree programs are related to public service motivation using a higher education socialization framework was explored. According to foreign researchers, these programs are designed to provide students
with the knowledge they need to be competent public servants and to help shape their commitment to their chosen profession (Bright, 2016).

Although not abundantly, but some researches on the policy of prospective police officers training in Lithuania can be detected. In 2002 Č. Mančinskas analyzed the development of police science in Lithuania from the first steps to the occupation of Lithuania. The author stated that during the interwar period the Lithuanian police science system was generally in line with that age of society, the education of police officers was not lower than the general level of society and the Lithuanian police had the necessary authority (Mančinskas, 2002). In 2002 R. Tidikis published his study in this area also. According to the scholar, the training of future officers should cover both theory and practice, as the interaction of it is particularly significant. In the author's view, higher education is an important aspect for effective police work (Tidikis, 2002). In 2011 K. Vitkauskas analyzed the policy of training Lithuanian police officers in the context of the European Union (hereinafter – EU). When analyzing the police training systems of individual EU countries, K. Vitkauskas says that the preparation of modern police officers does not just mean vocational training, which develops special skills, it is necessary to provide them with a general higher education level. The issue of insufficient police training for police officers in 2012 was examined by V. Toločka. According to the author, the physical preparedness of the officers is insufficient and does not meet the set standards. There is also a lack of scientific researches analyzing military officers’ preparation. In the article, which was published in 2012 G. Gražytė-Miliukienė and D. Prakapienė stated that the main purpose of the training of prospective military officers is to prepare solders who will be able to properly master their knowledge and skills and to use personal qualities at work. Military education, training and development must be in line with The North Atlantic Treaty Organization’s (hereinafter – NATO) strategy, doctrines, procedures and standards (Gražytė-Miliukienė, Prakapienė, 2012). In 2013 R. Kazlauskaitė-Markelienė and A. Petrauskaitė sought to reveal the peculiarities of the organizational identity of the Lithuanian Military Academy as a new type of academic community. According to the mentioned authors, the establishment of the LKA and its strategy was a forward step and the result of the interaction between the military and academic identity of this educational establishment has become the basis of all the values of the Lithuanian armed forces.

This study analyzes and compares the training policies of two uniformed services (police and professional army): the length of training, tuition fees, general and special requirements for students, career prospects, etc. The subject is analyzed in two aspects: the educational institutions preparing statutory and military officers for the service (i) and students and cadets (ii). Qualitative research method was chosen as a pilot research. The opinion of 12 respondents (police commissariat and battalion) was collected using a questionnaire and applying the method of an interview of experts.

**Preparation for statutory and military services: comparative analysis**

Analyzing two separate services from the first perspective, it should be noted that the preparation of police officers is regulated by the Internal Service Statute of the Republic of Lithuania (hereinafter – Statute) and the Police Activity law of the Republic of Lithuania (Hereinafter – Police activity law). Primary vocational training
for officials takes place at the vocational training institutions in accordance with formal vocational training programs (Statute art. 14). Second basic training institution is the MRU Public Security Faculty in Kaunas. Here the future A-level university education officers are trained for the police and the border. There is no B-level education organization in Lithuania. The majority of prospective police officers preparation is based on initial vocational training.

Table 1. Educational organizations: comparative analysis

<table>
<thead>
<tr>
<th>Educational organizations</th>
<th>Statutory service</th>
<th>Military service</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vocational training</strong></td>
<td>Lithuanian Police School</td>
<td>-</td>
</tr>
<tr>
<td><strong>Higher education</strong></td>
<td>Mykolas Romeris University (Faculty of Public Security)</td>
<td>General Jonas Žemaitis Military Academy of Lithuania</td>
</tr>
<tr>
<td><strong>Duration of training (academic years)</strong></td>
<td>Vocational training</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Higher education</td>
<td>3,5</td>
</tr>
<tr>
<td><strong>Theoretical and practical studies</strong></td>
<td>Vocational training</td>
<td>Both</td>
</tr>
<tr>
<td></td>
<td>Higher education</td>
<td>Only theoretical</td>
</tr>
<tr>
<td><strong>Study cost</strong></td>
<td>Vocational training</td>
<td>Free</td>
</tr>
<tr>
<td></td>
<td>Higher education</td>
<td>Paid by themselves</td>
</tr>
</tbody>
</table>

Source: developed by author

The training of the military officers is regulated by Organizing of the National Defense and Military Service law of the Republic of Lithuania (hereinafter – KASOKTI). LKA is a state university where military and national security specialists are being trained in various programs. The procedure for the establishment, reorganization and liquidation, management and financing of higher education institutions established by laws and other legal acts of the Republic of Lithuania is not applicable to the Academy. The Statute of the Academy is approved by the Government on the proposal of the Minister of National Defense. It should be noted that persons who do not have completed a special educational establishment may be admitted to professional military service as well. Persons who have completed the compulsory initial military service or otherwise obtained the necessary basic military preparedness are admitted to professional military service (KASOKTI art. 28). In this case, a probationary period is foreseen. In the table below (Table 1) structured information is provided.

As can be seen in the table (Table 1), preparation for statutory and military service in Lithuania is carried out by special educational institutions. Prospective police officers are prepared by primary vocational training and higher education programs, while military officers are only trained at a higher education institution. Upon successful completion of the training, the students obtain a police qualification.
and may be recruited into the police. As a general rule, police officers that perform so-called „street-level“ tasks do not require in their training a higher education degree. Equally, these services are all the features of career-type public service where hierarchy and ascension through the ranks is all important. At some point of an officer’s career street-level training does not suffice and additional training is needed. Border guards, and police have a mixed system with some student completing higher education in a faculty of Mykolas Romeris University, where their status is similar to cadets in the military academy or these services recruit heavily from the broader population. Training in primary vocational education institution lasts for 1 year, at the universities 3.5-4 academic years.

From another perspective – students and cadets, the requirements for them should be analyzed and compared. Prospective police officers acquire curated or student, military officers - cadet status during the studies. In the table below (Table 2) structured information is provided. Information is taken from Rules of the Selection to LPM (no. 5-V-129) and Rules for Acceptance of the Long Term Bachelor Studies in LKA 2018.

Table 2. Students and cadets: comparative analysis

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Statutory service</th>
<th>Military service</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learner status</strong></td>
<td>Curated / Student</td>
<td>Cadet</td>
</tr>
<tr>
<td><strong>Graduated status</strong></td>
<td>Police officer</td>
<td>Military officer</td>
</tr>
<tr>
<td>Age</td>
<td>18-60 year</td>
<td>18-25 year</td>
</tr>
<tr>
<td>Secondary education (exam results)</td>
<td>Lithuanian and foreign languages, mathematics and history</td>
<td></td>
</tr>
<tr>
<td>Health status and psychological preparation</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Physical preparation</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Tests</td>
<td>General knowledge</td>
<td>Professional suitability</td>
</tr>
<tr>
<td>Motivational conversation</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Driver license</td>
<td>9 months driving experience</td>
<td>-</td>
</tr>
<tr>
<td>Clean sheet</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Permission to work with classified information</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Competitive score</td>
<td>4</td>
<td>3,6</td>
</tr>
<tr>
<td><strong>Duration of the selection process</strong></td>
<td>8-10 weeks</td>
<td>~6 weeks</td>
</tr>
</tbody>
</table>

*Source*: developed by author

Selection of prospective police officers process in LPM takes longer than joining other schools – about 8-10 weeks. In particular, young people have to submit necessary documents. Subsequently, individuals are sent to the Central Medical Examination Commission, which checks the health status and psychological fitness of a person. The Territorial Police Institutions check the biographies of the candidates, explain whether the person was prosecuted. After this stage, young people also have to undergo physical fitness tests and general knowledge tests. Exams results (or annual grades) of Lithuanian, mathematic, history and foreign languages are evaluated.
Prospective officers have to do logic thinking, text comprehension and literacy tasks, participate in motivational conversation. From 2016 a new requirement for candidates has been introduced - to have 9 months driving experience.

What about studies in LKA, applicants must take part in the selection process - to pass the professional suitability test. After completing the professional suitability test, person is sent to the Military Medical Examination Commission, where the admission of the health will be checked and a decision is made. Persons who have passed the professional suitability test are subject to verification of the right to work or access to classified information.

So as it can be seen in the Table 2, there are many similarities between selection process in statutory and military services. The most striking differences are these: age limitation, special tests, motivational conversation, driver license, permission to work with classified information and the duration of the process. It can be argued that there are even more demands on selection to police service than requirements for military officers.

**Experts’ opinion: between not sufficient and too high**

To find our experts’ opinions, qualitative research method was chosen for the research. In order for the research to reveal statutory and military officers’ opinions, assessments and reasoning as well as to enable finding out more about the object analyzed and having analyzed the topologies of the interview the questionnaire was used. During an interview open-ended questions were asked, respondents were free to answer it. This kind of interview is valued for two reasons: it helps to discover the responses that individuals give spontaneously; the other is to avoid the bias that may result from suggesting responses to individuals (Reja et al, 2003) Before the beginning of the interview the questionnaire was presented, it was mentioned as well, that information collected during the investigation will be presented only in summary form, and the data form will not be publicly announced. Agreements of heads of police commissariat and battalion were get before the interview.

12 experts were interviewed during this research. Methodological assumptions formulated in the classic theory of tests were used to determine an acceptable number of experts (Podvezko, 2005). Theory states that reliability of aggregated decisions and the number of persons making the decisions (in this case, experts) is related by a quickly fading linear relationship. It has been proven that accuracy of the decisions and assessments made by a small group of experts’ equals’ accuracy of the decisions and assessments made by a large group of experts in modules of aggregated experts’ assessments with the same weights (Libby, Blashfield, 1978). Accuracy of decisions and assessments is high enough when the number of experts reaches at least 12. It means that the number of the experts in this study is sufficient in order to obtain accurate information. Experts were selected with different experience in statutory and military services - up to 1 year, 1-5 years, 5-10 years and 10 years. In general, research ethics covers aspects such as research originality, clear analysis of the research, appropriate research publication, the voluntary submission of survey participants, confidentiality (Baserer, 2016). Two comparative aspects were distinguished: vocational training or higher education institutions, demands on prospective students and cadets as well.
The experts were asked to name the weaknesses of the preparatory for the statutory and military services. All answers are given in the table below (Table 3). From the provided information, it is possible to clearly see what problems were encountered in the statutory service. Majority of the experts think that the duration of the training is too short and not sufficient, students are not able to absorb all the information. What is more too large groups of the learners are made, during the practical training the necessary equipment is missing. It should be mentioned that according to the experts' opinion, too high demands on level of health exists. On the other hand, respondents regret that required level of knowledge is too low.

Table 3. Problems of the vocational training / higher education in statutory and military services

<table>
<thead>
<tr>
<th>Educational organization (duration, quality)</th>
<th>Statutory service</th>
<th>Military service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lack of time, sometimes lack of information;</td>
<td>More practical skills and psychological preparation are needed;</td>
</tr>
<tr>
<td></td>
<td>Too short preparatory phase;</td>
<td>There are no big problems;</td>
</tr>
<tr>
<td></td>
<td>Incompletely clarified tasks and plans;</td>
<td>There are no problems, the biggest problem is the human unwillingness to improve.</td>
</tr>
<tr>
<td></td>
<td>Too large groups;</td>
<td>No problems;</td>
</tr>
<tr>
<td></td>
<td>Insufficient training base, lack of equipment;</td>
<td>No problems;</td>
</tr>
<tr>
<td></td>
<td>No problems;</td>
<td>Had not to face;</td>
</tr>
<tr>
<td></td>
<td>I do not know;</td>
<td>No problems.</td>
</tr>
<tr>
<td></td>
<td>No problems.</td>
<td></td>
</tr>
<tr>
<td>Students and cadets perspective (requirements)</td>
<td>Too high requirements for the health;</td>
<td>Too high requirements for the level of health;</td>
</tr>
<tr>
<td></td>
<td>Strong competition, self-doubt;</td>
<td>There are no problems unless there is a need for higher education requirements.</td>
</tr>
<tr>
<td></td>
<td>Low educational requirements;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>People not aware of the specifics of the service and work;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I think too high requirements;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Higher requirements for the education could be.</td>
<td></td>
</tr>
</tbody>
</table>

Source: developed by author

Some similarities could be seen while analyzing professional military service officers' answers. Military officers' regrets that too high requirements for the level of the health exists. For example conscripted soldier who has completed the service often does not match the health group for engagement in professional military service. It is important to emphasize that no more problems there named at this stage. Military officers' think that human resources policy in higher education is well organized.

Such an analysis makes it possible to compare two different services, highlighting the problems of each of them. As can be seen, analysis of the study data from the first – vocational and higher educational organizations perspective – the issue of short-term and insufficient training was revealed in the statutory service, which is not named by any military service soldier. From another - students and cadets perspective – too low requirements for the education and too high for the health status were identified.
Conclusions

In Lithuania, each separate uniformed service has separate educational institution, provides for the duration and content of the training itself. However higher and vocational preparation in Lithuanian system has been developing without a single trend across the uniformed services. Moreover most organizations, and skillsets needed for uniformed services to operate effectively overlap significantly with civilian and private companies. There is the lack of studies that analyze the quality of vocational training and higher education of the uniformed officers in general. Especially in the military service. This study reveals surprisingly large differences between comparable services – police and professional army. Although these services are often identified, they are separated not only for their constitutional purposes, but also for the different types of human resource polices in the field of training.

As the military embraced NATO standards, officers’ training can only be delivered to persons seeking higher education as cadets in the military academy, or those that have already received a higher education elsewhere. Based on the information gathered in this study and the experts’ opinion, the preparation of the military officers is sufficient, carried out efficiently. Lithuanian Armed Forces which seeks to take over the NATO strategy and doctrines, has set up a solid foundation for training officers, ensuring a proper preparation for the service.

Police officers’ career opportunities are only made available for officials who attain higher education on their own accord. In Lithuania, the police officers pay tuition for higher education themselves. In this way, Lithuania has become the only EU state in which such a procedure prevails. In all other countries, the needs of future officers are shaped and paid by the state. There is no institution that coordinates and evaluates the process of qualification improvement at the state level. What is more, there is no institution of education in Lithuania, e.g. college, that prepares B level officers (higher non-university education), although they hold more than 50% of the officers. So a large part of the official is being set up on the basis of vocational training.

The average duration of training programs offered by vocational training centers in Lithuania is from 1 to 2 academic years. According to the currently established procedure, the modular vocational training program for a police officer is 1 year (average theoretical training is 11 weeks, the average duration of practical training, including the final practice, 29 weeks). According to the experts’ opinion, the problem of insufficient initial vocational training (too short training duration, lack of knowledge, lack of information, low educational standards) for the police officers was identified. Based on the information structured in the study, it can be argued that the duration of the basic education / initial vocational training of statutory officers should be extended (additional time for preparation in proportion to the distribution of theoretical and practical parts). Having regard to the importance of the functions performed by statutory officers and in order to ensure their qualified performance, special attention should be paid to their proper preparation and continuous training.

References


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Abstract

In recent years, cyber security has become one of the most actively discussed topics of international law, not only because domestic and inter-State cyber security incidents have grown in number and severity, but also because of the realisation that the technical peculiarities of cyberspace create new and unique legal problems that previously have not been encountered.\(^1\)

In the Wales Summit Declaration on 5 September 2014, NATO recognized that international law, including international humanitarian law and the United Nations Charter (UN Charter), applies in cyberspace. A decision as to when a cyberattack would lead to the invocation of Article 5 would be taken by the North Atlantic Council (NAC) on a case-by-case basis.\(^2\)

Collective self-defense expressed in Article 5 of NATO Treaty is a well-known fundamental principle of NATO: “...an armed attack against one or more of them in Europe or North America shall be considered an attack against them all (…)”.\(^3\)

Although Article 5 of the NATO Treaty has no concept of the objects of armed attacks, cyberattacks as “Armed Attacks” can be carried out on Critical Infrastructure (CI), and on Critical Information Infrastructure (CII). Such objects can function for both military and civilian purposes. CI for civil purposes can be both in state and private ownership. The types of activities of such objects are important for the exercise of state functions.

Purpose - The present article aims at analyzing concept, types, functions of critical infrastructure and cases of cyberattacks on such objects and to determine the relationship with definition of Armed Attack in light Article 5 of the NATO Treaty.

Design/methodology/approach – the author of the article is comparing legal definitions of CI in-laws of member states of NATO that connects to cyberattacks and come across with differences and common points. The case of Estonia (cyberattack on government networks), Ukraine (cyberattack on CII) and Stuxnet (cyberattacks against CI) are shortly reviewed.

Finding - when it comes to cyberattacks, in most cases, it is conducted on a CII, which is directly connected and is the source of automatic control of critical infrastructure. To date, the most successful such definition is in the strategy for cybersecurity of Lithuania as a NATO member, and a partner of NATO, Finland. Case in Ukraine showed that CI works in disconnected access to the Internet network. However, working personnel periodically violated

\(^{1}\) Katharina Ziolkowski, Peacetime Regime for State Activities in Cyberspace, International Law, International Relations and Diplomacy (Tallinn, Estonia: NATO CCD COE Publications, 2013), 621


the rules of automated control and connected the Supervisory Control and Data Acquisition (SCADA) to the Internet.

**Research limitations/implications** – the author uses NATO Treaty, legislation of the member countries of NATO to compare it and three cases of cyberattacks on CI.

**Practical implications** – the article could be considered by NATO’ headquarters (NATO HQ), North Atlantic Council (NAC), Allied Command Transformation (ACT), NATO Communications and Information Agency (NCI Agency), NATO accredited Centres of Excellence, in particularly NATO Cooperative Cyber Defence Centre of Excellence (NATO CCD COE), military legal advisers to the command of NATO allies and partner countries.

**Originality/Value** – the problem of application of Article 5 of NATO Treaty to cyberattacks is quite new for NATO and partner countries as well. That also causes a novelty of that article – finding that cyberattacks on CI could be invoked right on the collective self-defense for NATO.

**Keywords** – Cyberattack, Armed Attack, NATO, Critical Infrastructure, Critical Information Infrastructure, Collective Self-Defense

**Research type** – research paper

**Introduction**

To date, cyberattacks pose a serious threat to NATO's defense and security. Every time, cyberattacks become more sophisticated to identify and attribute to the attacker. There is no doubt that cyberattacks can create serious devastating consequences for CI of states. This can lead to disastrous consequences.

It is possible that cyberattacks can be committed on CI designed for military purposes. The protection of such types of CI from cyberattacks is very important for the performance of the functions of state defense. In addition, cyberattacks can be used in combination with kinetic attacks, which can cause unpredictable consequences.

Several states have in fact been the object of cyberattacks of which other states were suspected. In 2007, a three-week Distributed Denial of Service (DDoS) attack targeted Estonia. Cyber operations also hit, among others, Azerbaijan, Kyrgyzstan, Lithuania, Montenegro, South Korea, Switzerland, Taiwan, the United Kingdom, and the United States. In September 2010, a computer worm, dubbed Stuxnet, had attacked Iran's industrial infrastructure. In December 2015, Ukraine faced a major escalation in the seriousness of cyberattacks on Critical Energy Infrastructure (CEI).

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1 Supervisory Control and Data Acquisition (SCADA) systems that are used to monitor and control features in the industrial sector and energy transit infrastructure. The security of the SCADA system consists of four major elements: real-time monitoring, detection of anomalies, impact analysis and mitigation strategies. Limba T.; Piletė T.; Agafonov K.; Damkus M. 2017. Cyber security management model for critical infrastructure, Entrepreneurship and Sustainability Issues 4(4), 561. http://dx.doi.org/10.9770/jesi.2017.4.4(12)


Taking into account that the cyber threats and attacks are becoming more common, sophisticated and damaging, it is very important that such actions are countered with a strong commitment to existing international law and the values that it represents. The right to collective self-defense in the case of cyberattacks on CI becomes relevant and necessary for research in international law.

One way of exercising collective self-defense is through a military alliance established to that purpose. The most significant collective self-defence international organization today is North Atlantic Treaty Organization (NATO) as source of stability in world and the transatlantic framework for strong collective defense. The right to collective self-defense in the case of cyberattacks on CI becomes relevant and necessary for research in international law.

Bearing in mind that NATO has affirmed the applicability of international law and article 5 of the NATO treaty in the case of cyberattacks, there is a scientific need to examine CI within the concept of cyberattack as "Armed Attack" according to Article 5 of NATO Treaty.

The article will focus on analyzing: 1) the concept, types and functions of CI as objects of cyberattacks, 2) cyberattacks against CI: Estonia, Stuxnet and Ukraine cases study 3) the consequences of cyberattacks against CI in the light of the right to collective self-defense.

**Concepts, types and functions of CI as the objects of the cyberattack**

The cyberattacks can be directed at both CI and CII. In modern international law, there is no definition of these two concepts. However, NATO countries and partner countries refer to the Critical Infrastructures Protection Act of the United States of 2001. This is defined CI as system and assets, whether physical or virtual, so vital to the country that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters.

Although governments administer only a minority of the Nation’s CI computer systems, governments at all levels perform essential services that rely on each of the critical infrastructure sectors. Such sectors related to agriculture, food, water, public health, emergency services, government, defense industrial base, information and telecommunications, energy, transportation, banking and finance, chemicals and hazardous materials, and postal and shipping.

In turn, when it comes to cyberattacks, in most cases it is conducted on a CII, which is directly connected and is the source of automatic control of critical
infrastructure. To date, the most successful such definition is in the strategy for cybersecurity of Lithuania as a NATO member, and a partner of NATO, Finland.

According to approval of the program for the development of electronic information security (cyber-security) of Lithuania for 2011-2019, CII shall mean an electronic communications network, information system or a group of information systems (included all hardware and software that process, store, and communicate information, or any combination of all of these elements, computer systems; control systems (e.g. SCADA). In addition, it is included networks, such as the Internet; and cyber services (e.g., managed security services), are part of cyber infrastructure where an incident that occurs causes or may cause grave damage to national security, national economy or social well-being.

In Finland’s Cyber Security Strategy from 2010, CII refers to the structures and functions behind the information systems of the vital functions of society which electronically transmit, transfer, receive, store or otherwise process information (data).

In a traditional armed attack, the fact that the target is military or civilian would not make any difference: the state where the target is located would be entitled to self-defense because its territorial integrity has been violated.

Hence, Dinstein correctly points out that, if a conventional armed attack against a civilian facility on the territory of the target state would amount to an armed attack even if no member of the armed forces is injured or military property damaged, there is no reason to come to a different conclusion with regard to cyberattacks against civilian systems.

Most CI are not owned by the government, but by the private sector: the governmental or private character of the infrastructure targeted, however, is also not relevant to the determination of the existence of an armed attack against the state. It is not relevant that the computer system is run by a company possessing the nationality of a third state or that the computer system operated by the victim state is located outside its borders (for instance, in a military base abroad).

For a clear understanding of the enemy's real target as CI, the author suggests several examples of cyberattacks on CEI, like some situations during crisis (military) stage, which were used during Tabletop Exercise Coherent Resilience (CORE) 2017 in Ukraine: 1) As a result of cyberattacks, three regions have had their power interrupted. A 750 kV high-voltage substation is disconnected from the United Energy

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5 Marco Roscini, Cyber Operations and the Use of Force in International law (UK: Oxford University Press, 2014), 76.
System (UES) of Kray; 2) As a result of a cyber-attack on the SCADA system of telemechanical control, the system lost the opportunity to receive information.\textsuperscript{1}

These examples show that CI is the target of the attacker. Situations were used in real practice. A feature of these examples is that such an infrastructure works in disconnected access to the Internet network. However, working personnel periodically violated the rules of automated control and connected the system SCADA to the Internet.

Taking into account the experience of previous cyberattacks on state critical CI facilities, as well as the results of Tabletop Exercise Coherent Resilience (CORE) 2017 in Ukraine, the author suggests the following structure of the objects of cyberattacks in the light of Article 5 of the NATO treaty (Figure 1).

![Figure 1. Objects of cyberattacks as “Armed Attack” in light Article 5 of NATO Treaty](image)

From this figure it can be concluded that cyberattacks as Armed Attacks can be carried out on CI, and on CII. Such objects can function for both military and civilian purposes. CI for civil purposes can be both in state and private ownership. The types of activities of such objects are important for the exercise of state functions.

\textsuperscript{1} Final Evaluation Report, Advanced Training Course on Critical Energy Infrastructure Security with Tabletop Exercise Coherent Resilience (CORE) 2017, NPS EAG, Kyiv, Ukraine.
History knows several examples when cyberattacks were conducted on CI. Among them, the author would like to note Estonia (2007), Stuxnet (2010) and Ukraine (2015, 2016) cases. These cases are of an international nature, because, as a rule, cyberattacks were conducted outside the state.

On April 26 and 27 of 2007, Estonia witnessed two nights of unprecedented street riots in the centre of Tallinn, its capital, by youth groups mostly of ethnic Russian origin. The riots had broken out in response to the government decision to remove a Soviet-era Second World War (WWII) memorial, a decision which had been accompanied by intense vocal opposition by Estonia and Russia.¹

Cyberattacks started in parallel to rioting on streets in the late hours of Friday, April 27, when web pages of Estonian government institutions and news portals came under a wave of cyberattacks.² Attacks continued from April 27 to May 18 (3 weeks).

The prime targets (and also those that experienced major effect) were information distribution channels of both the government and the private sector, and business sector websites, specifically, the banks. The work of vital databases, systems or registers of the public and private sector was not disrupted, but there were attacks directed at the national Internet infrastructure. Also, the common emergency number 112 was targeted so that calls were briefly blocked.³

The targets for cyberattack were mainly fourfold: servers of institutions that are responsible for the Estonian Internet infrastructure; governmental and political targets; services provided by the private sector; personal and random targets. Notably, traditional CI objects, such as information systems supporting transportation and energy systems, were not targeted.⁴

The cyber effects had both a direct economic and a wider societal effect. As many sectors of commerce and industry rely on ICT infrastructure and electronic communication channels in their daily conduct of business, the overload of e-mail servers, network devices and web servers of internet service providers not only affected large entities such as banks, media corporations, and governmental institutions, but also small and medium-sized enterprises whose daily business activities were seriously impaired.⁵ The attacks also affected the nation’s information flow to the outside world.

The question of invoking article 5 of NATO Treaty was never seriously considered. As expressed by Mr. Jaak Aaviksoo, Estonian defence ex-minister, it was clear that “At present, NATO does not define cyberattacks as a clear military action.

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Not a single NATO defence minister would define a cyberattack as a clear military action at present”.¹

*Stuxnet*, a malicious form of software also known as *W32.Stuxnet worm*, was first reported on 17 June 2010 under the name *Rootkit.TmpHider*. *Stuxnet* targeted the computer systems of five facilities (according to recorded WAN IP addresses / computer domain names) located in Iran, between June 2009 and May 2010. The worm affected specific industrial control systems which use a type of software for management of large-scale industrial systems SCADA systems developed by the company Siemens and showing specific configuration requirements.²

According to *Stuxnet*’s architecture, the worm was created to amend the code of Programmable Logic Controllers (PLCs) of industrial control systems in order to amend the plant’s operations by manipulating frequency converter control systems and thus slowing down or speeding up a motor, as well as hiding such changes from the operator of the respective equipment. Nuclear infrastructures in Iran as the targets of *Stuxnet*, namely the uranium enrichment plant at *Natanz* and/or the nuclear power plant at *Bushehr*, suspecting that the speed of the IR-1 centrifuges’ rotors was being amended in order to negatively affect Iran’s nuclear programme.³

Based on information available in media, it is not known whether *Stuxnet* did affect the physical integrity of IR-1 centrifuges or other components in Iran’s uranium enrichment plant at *Natanz*, the nuclear power plant at *Bushehr* or in other nuclear facilities. Iranian officials did not confirm any actual damage of a physical nature which had been caused by *Stuxnet.*⁴

In December 2015, Ukraine faced a major escalation in the seriousness of the Russian cyberattacks on its CEI.⁵ According to the US Department of Homeland Security, which reported on the case, the Russian cyberattack on the Ukrainian CEI was one of the most successful cyberattacks on CEI in the world.⁶

Facts are the following. An unpredictable blackout of electric power occurred in several areas of Ukraine (Ivano-Frankivsk, Chernivtsi, Kyiv regions) on 23 December 2015, at about 4:30 in the morning. In that moment, a message appeared on the official website “Prykarpattiaoblenergo” (Ivano-Frankivsk region) about large-scale failures in the power supply system that occurred for unknown reasons. Immediately after the attack, it was discovered that the reason for stopping the work of the control equipment was an external intrusion into the operation of the power grid monitoring and control systems.⁷

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⁴ A denial of any physical damage by Iranian officials was reported by: Reuters, After Stuxnet: Iran says it’s discovered 2nd cyber attack, in: The Jerusalem Post online available at http://www.jpost.com/IranianThreat/News/Article.aspx?id=217795
⁵ “The first case of a successful cyberattack on energy objects has been registered in Ukraine” Ukrainian National News Link: http://www.unn.com.ua/uk/news/1552689-minenergovugillya-pershiy-u-sviti-vipadok-vdaloyi-iberataki-na-obyekti-energetiki-zareystrovano-v-ukrayini
⁶ US DHS ISC CERT Alert Link: https://ics-cert.us-cert.gov/alerts/IR-ALERT-H-16-056-01
⁷ Plėta, T., Karasov, S., Jakštas, T. 2018. The means to secure critical energy
Simultaneously, hackers struck a powerful blow to the computer networks of the energy company “Kyivoblenergo”. The hackers managed to access the IT systems controlling the substations of the company by temporarily disrupting the electricity supply to end consumers.¹

To summarize, the interrupted power supply led to the disconnection of 220 thousand consumers between 1 to 3.5 hours. It should be noted that a shutdown did not cause serious damage to the electricity system of Ukraine. It was a loss 73 MWhrs (0.015% of electricity consumption per day).²

After the cyberattack on Kyivoblenergo, some others followed. For instance, the “North” substation of 330 kV (NEC “Ukrenergo”) was completely de-energized on 17 December 2016. This resulted in the outage of a load of 144.9 MW for the “Kyivenergo” Public Company (Kyiv City) and of 58 MW for another company, “Kyivoblenergo” (the Kiev region). A Kyiv pump-storage plant was also de-energized with a loss of in-house supply.³

According to some analysts the attack was more sophisticated but was not fully exploited (attackers had the power to do worse) and may have been just a “test” of a new capability.⁴

**Consequences and effects of cyberattacks on CI and right self-defense in light Article 5 of NATO Treaty**

In the analysis and literal interpretation of Article 5 of NATO Treaty it becomes clear that these norms do not foresee consequences in terms of content. However, take in account opinion of ICJ⁵ that the scale and effects required for an act to be characterized as an armed attack, it should be focus on such elements of “Armed Attack” as consequences.

If a cyberattack leads to a significant number of fatalities or causes substantial physical damage or destruction to vital infrastructure, military platforms or installations or civil property, it could certainly be qualified as an ‘armed attack’ within the meaning of Article 5 of NATO Treaty. A digital attack against information systems linked to vital infrastructure, military installations and platforms for weapons systems or vital services, such as the emergency services or air traffic control infrastructure in the context of hybrid warfare: the case of Ukraine, *Journal of Security and Sustainability Issues* 7(3): 570. http://doi.org/10.9770/jssi.2018.7.3(16)


³ Threat Intelligence Report, Cyberattacks against Ukrainian ICS. The views expressed by V. Butrimas are for NATO, NATO member countries, NATO partners, related private and public institutions and related individuals. Link: https://www.sentryo.net/wp-content/uploads/2017/09/EBOOK_CYBERATTACKS-AGAINST-UKRAINIAN-ICS.pdf

⁴ Threat Intelligence Report, Cyberattacks against Ukrainian ICS. The views expressed by V. Butrimas are for NATO, NATO member countries, NATO partners, related private and public institutions and related individuals. Link: https://www.sentryo.net/wp-content/uploads/2017/09/EBOOK_CYBERATTACKS-AGAINST-UKRAINIAN-ICS.pdf

systems, could breach the threshold of an armed attack if it causes significant loss of life or physical destruction.\(^1\)

Consequently, neither the attacks on Estonia in 2007 nor Stuxnet on Iran in 2010 and Ukraine in 2015, 2016 fall within the definition of armed attack. Those attacks did not cause any human or material damage and the disruption that they did cause was contained and was manageable.

However, from opinion of Benedetto, the first approach leaves out cyberattacks that have serious consequences without actually causing physical damage, destruction, injury or death. Consider for example a cyberattack that targets the financial system of a State or other CI, such as SCADA networks, severely affecting the functioning of a State or even causing a State to be paralyzed. It appears disproportionate that these cyberattacks would not reach the threshold of armed attack, while their effects may be more severe, long lasting and on a greater scale than other effects caused by traditional armed attacks. \(^2\)

Others experts took the view that it is not the nature (injurious or destructive) of the consequences that matters,\(^3\) but rather the extent of the ensuing effects.\(^4\) Roscini suggested that in order for a cyberattack to amount to an armed attack, it has to be a use of force first, such an operation that causes or is reasonably likely to cause extrinsic physical damage to persons or property or severe disruption of critical infrastructures, in spite of a contrary opinion.\(^5\) Dinstein has suggested some examples of cyberattacks serious enough to amount to “Armed Attacks” without extrinsic physical damage to persons or property.\(^6\)

NATO member countries such as the United States and the Netherlands indicate what the criteria could be for a cyberattack without physical consequences to constitute an “armed attack.”\(^7\)

Cyberattacks can produce multiple effects. The primary effects are those on the attacked computer, computer system or network, the deletion, corruption, or alteration of data or software, or system disruption through a DDoS (Distributed Denial of Service) attack or other cyberattacks. The secondary effects are those on the infrastructure operated by the attacked system or network (if any), its partial or total

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\(^1\) Cyber Warfare, No 77, AIV / No 22, CAVV December 2011, https://aiv-advies.nl/download/da5c7827-87f5-451a-a7fe-0aacb8d302c3.pdf
\(^4\) Advisory Council on International Affairs, Cyber Warfare, No. 77, AIV / No 22, CAVV, at 21 (December 2011) (stating the implied approval by the Netherlands of the position that: ‘if there are no actual or potential fatalities, casualties or physical damage’, a cyber operation targeting ‘essential functions of the state could conceivably be qualified as an “armed attack” . . . if it could or did lead to serious disruption of the functioning of the state or serious and long-lasting consequences for the stability of the state.’), https://aiv-advies.nl/download/da5c7827-87f5-451a-a7fe-0aacb8d302c3.pdf
destruction or incapacitation. Tertiary effects are those on the persons affected by the destruction or incapacitation of the attacked system or infrastructure, for instance those that benefit from the electricity produced by a power plant incapacitated by a cyber operation.\footnote{Marco Roscini, \textit{Cyber Operations and the Use of Force in International law} (UK: Oxford University Press, 2014), 52-53.}

The 2011 AIV/CAVV Report on Cyber Warfare, the \textit{jus ad bellum} conclusions of which have been endorsed by the Dutch government, states that “a serious, organized cyberattack on essential functions of the state could conceivably be qualified as an ‘armed attack’ within the meaning of articles 5 of NATO Treaty and 51 of the UN Charter if it could or did lead to serious disruption of the functioning of the state or serious and long-lasting consequences for the stability of the state”.\footnote{Cyber Warfare, No 77, AIV / No 22, CAVV December 2011, https://aiv-advies.nl/download/da5c7827-87f5-451a-a7fe-0aacb8d302c3.pdf}

Thus, the author agrees that the consequences and effects of cyberattacks are of a diverse nature. The presence of serious damage, destruction or death is not mandatory, it is enough to disrupt the functioning of the CI of the state for a sufficiently long period, which may entail further serious consequences. Also, the author found a difference in views on such approaches of NATO member states. A single approach within NATO is necessary, its form can be different.

\textbf{Conclusions}

To conclude the analysis of the meaning cyberattacks as “Armed Attacks” on the objects of critical infrastructure in light article 5 of NATO treaty author come forward with the following points:

1. The objects of the cyberattack can be either military and civilian, government or private, even situated outside the State’s territory. When it comes to cyberattacks, in most cases they are conducted on CII, which is directly connected to the automatic control of critical infrastructure.

2. Cyberattacks as “Armed Attack” can be with consequences as physical damage, destruction, injury or death and without of such consequences if it significantly affects the performance of State functions in various sectors of security, defense, economy, and society.

3. As a result of a legal analysis of the consequences and effects of an armed attack, it can be assumed that the case in Estonia in 2007 reaches the level of an armed attack in light Article 5 of NATO Treaty. Although cyberattacks during of 3 weeks did not cause serious destructive damage to the state, however, created a negative economic, informational and social effect during this a long period. This was not allowed to perform state functions.

4. The case \textit{Stuxnet} in Iran in 2010 shows not clarity in the consequences and the effects after a seriously organized cyberattack. Similarly, the cyberattack did not create long-term destruction or termination of CI and does not reach the level of an armed attack.

5. Cases in Ukraine in 2015, 2016 should be seen as a cyber company that consisted of several cyberattacks on CEI. However, the consequences, unlike Estonia,
were not prolonged or destructive and thus did not reach the level of an armed attack. This led to a criminal investigation at the national level.

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US DHS ISC-CERT Alert Link: https://ics-cert.us-cert.gov/alerts/IR-ALERT-H-16-056-01


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Abstract

Purpose – To explore how innovation ecosystems have advanced to become more human-centric innovation ecosystem. The purpose was achieved by carrying out the following tasks:

1. An analysis of the effects of the changing labour markets on innovation ecosystems which have resulted in the formation of human-centric innovation ecosystems.
2. Demonstrating how human-centric innovation ecosystems have evolved from innovation ecosystems, how they work (operate) hypothetically and interact strategically.
3. Analyzing literature which has validated that ‘human-centric innovation ecosystems’ is a new paradigm.

Design/methodology/approach – A document analysis is used to assess and understand how innovation ecosystems have evolved towards human-centric innovation ecosystems.

Practical implications – The literature analysis offers new insights on how innovation ecosystems have evolved, as well as why more research is required as labour markets continue to be influenced by internal and external factors, as it trends towards a more human-centric based innovation ecosystem.

Originality/Value – The analysis presented insights about the evolution of innovation ecosystem towards ‘human-centric innovation ecosystems’ and the changing trends of regional labour markets that influences it.

Keywords: Human-centric innovation, innovation ecosystems, human capital

Research type: literature review

Introduction

Since the dawn of human history, innovation has always improved the quality of life. Innovation is particularly effective when experience, skills and capabilities are combined to predict or address the challenges of society. A successful innovation ecosystem consists of fully harnessing, the central factor of human-centric based innovation ecosystems. Evolution of labour markets have resulted from the impacts of job crisis and losses, international competition, migration policies aimed at reducing skill shortages, support of innovation and boosting economic and productive growth. When equipped with the appropriate skills-set, it is perceived that human capital will have the capacity take-on good-quality jobs and fulfil their role as confident, active citizens. As the global economy continues to accelerate at a fast-changing pace, the capacity to fuel and drive national competitiveness will be dependent on highly innovative ecosystems that are more ‘human-centric focused’ rather than on technology. In supporting the talented human capital in innovation ecosystems, there
is a need to implement incentives that nurture and retain skilled workers, which ultimately reduce brain drain. In terms of innovation ecosystem, the evolution of labour markets is affected by its rate of development, labour markets and the market demand for highly skilled workers in knowledge-based, advanced economies.

Towards the late 1960s and towards the early 1970s, there has been an increased interest in investing more in the human capital (Becker, 1993/1964), primarily due to growth of physical capital in proportional to growth of income in most countries. Becker’s theory of human capital highlights specific differences between firm-specific and general human capital, where ‘general human capital’ refers to transferable knowledge and skills while ‘specific human capital’ relates to knowledge and skills, which are less transferable and have a narrow scope of applicability (Ucbasaran et al, 2008). Although traditional innovation theory literature measures human capital according to the level of formal education acquired, the higher education policy of national governments affects the rate and development of the human capital in innovation ecosystems (Romer, 1990; Cohen and Soto, 2007).

In developing a creative economy built entirely on uniquely human capacities of rational analysis and creativity, innovation needs to be viewed in a much more human-centered way, conceptualized as a complex responsive process of relating people to organizational, inter-organizational and national/regional innovation ecosystems (Fonseca, 2002). The analysis of this work aims to present insights into the theories surrounding innovation ecosystems and the impact of the political, economic, legal, social, external and technological factors that affect the human factor in human-centric innovation ecosystems.

Theoretical Framework on the Development of Innovation Ecosystems

According to Bruland and Mowery, (2008) innovation is everywhere and historically more associated with technology. Exhaustive discussions pertaining to innovation have been presented within the fields of social sciences (management and economics) and history (humanities); extensive scientific literature written about innovation, and the concept has become the main idea in popular imagery, the media, and public policy. Innovation processes shaped by social contexts and social conditions do indeed affect innovation change over time and varies across productive activities. The heterogeneous nature of economic activity as well as the diversity of the creation of technological processes across sectors creates certain characteristics that make it difficult to construct the relevant schemas of the historical development of innovation (Bruland and Mowery, 2008). Nonetheless some historians and analysts of innovation have developed a classification system on the eras of innovation that is predominantly based ‘critical technologies’ which defines the period of innovation development.

Moreover, innovation became a widely used paradox during the capitalist era during the twentieth century (Godin, 2008). Before then, invention, ingenuity and imagination were symbolic to civilized societies and attributes of geniuses contributing to the advancement of the human race. However, the emergence and the increased importance of the role of organizations in the twentieth century has led to significant changes in the value of innovation and how it is defined. More importantly, the mobilization of organizations employees’ creative abilities has led to the study of innovation in terms of the effects of technological breakthroughs it has made on the
economy and society. As a result of this, the terms invention, ingenuity, imagination, came to be collectively termed to describe “innovation”, with talent or creative abilities of individuals placed in the service of organization and institutions.

Another definition for innovation when applied to the intellectual is the applying of new ideas to the products, processes, or other aspects of the activities with a firm or institution that result in ‘value-added’ processes, or ‘value-creation’. Value creation adds higher value for firms or increased customer benefits to clients. Innovation at the organizational level for firms and companies can result in organizational changes within the firm or institutions and can be classified as a ‘process innovation’. On the other hand, product innovations are tangible manufactured goods, or intangible services, or a mixture of both systems. While innovation can be viewed as a novelty resulting from creating or improving existing processes, or the generation of new ideas then question is how much novelty is required to identify any change as “innovation.” Innovation should not be confused with invention as an invention is the enhancement of current knowledge that does not instantaneously become novel product or process. The key feature of innovation that distinguishes innovation from invention is that it happens when new products and processes are produced from either combining existing ideas or the application of new knowledge to solve a problem. Therefore, when analyzed schematically, innovation results from the heart of a complex processes which when preceded by inventions and succeeded by the widespread adoption of a new genre of products, or adoption of best-practice processes in firms, results in final stage diffusion, which portrays the true benefits of innovation.

In reference to correlating ‘strategic infant industries’, development blocks’ and ‘clusters’ and to innovation ecosystems’ it is presumed that 90% of those former concepts are what innovation ecosystems are based from (Anderson, 2011). Innovation ecosystems are successful examples of geographic, economic, industrial or entrepreneurial agglomerations (Bruland and Mowery, 2008). Innovation ecosystems are primarily about successful innovative regions, successful Information and Communication Technologies (ICT) platforms or new industries (Schumpeter, 1934). An innovation ecosystem refers to the large number and diverse nature of participants and resources that are necessary for innovation (Autio, 2013).

It models the economic dynamics required to enable technology development and innovation and includes material resources (funding, facilities, or equipment), human capital (students, researchers, university faculty and staff, industry representatives) which collectively make up entities (institutional) that participate in the ecosystem (universities, vocational and training institutions, arts and media schools, State and business assistance programmes as well as NGOs or funding agencies, and policy makers). The innovation ecosystem mainly comprises of the knowledge economy, driven fundamentally by research, and the commercial economy, which is driven by the marketplace (Fujitsu, 2014). Although innovation ecosystems are predominantly geographically based, the Internet has developed exponentially to include an evolutionary pathway for these systems to transition towards more globally-positioned, influenced technologies and enterprise-based systems. This is the key result as innovation is often associated with problem solving, the challenges in society usually complex and multi-faceted, and require more innovative approaches (Hautamäki, 2015). Innovation ecosystems are meant to be dynamic and inclusive of
an interactive network that breeds innovation (Porter 1998; Hautamäki and Oksanen, 2015)

**Human-centric Innovation**

Traditionally, it is common for innovative companies to focus on advanced, technological products as the vision of success, however this perspective is wrong when it comes to innovation, as the focus of innovation should be on people or the human factor of innovation (Fujitsu Technology and Service Vision, 2014).

Innovation in its true sense is not created by technology rather it is created by people, usually “a process undertaken by people to create new value for people”. When one refers to the human factor in innovation, developing talented human capital is the first step. This can be done primarily through a national scheme where nations attempt to create the necessary infrastructure such as research and development institutions or centers and investing more in higher education. Another method can be attracting talented human capital from other regions of the world and then training and employing them in various innovation activities. Western countries such as the United States of America have successfully attracted prominent persons or talent from all over the world and have simultaneously created an ecosystem in which innovation is first priority (Cornell University, INSEAD, and WIPO, 2014)

Human centered innovation in simple terms means solving problems through aiding the human-factor, people to succeed in attaining certain goals. Human-centered innovation can be utilized by Governments through providing more opportunities through higher education and vocational training institutions. In an attempt to measure the entire landscape on the role of the human factor behind innovation, the Global Innovation Index reported that although this is a daunting task, there are a number of indicators that provide evidence of the value of the human factor in Innovation (see figure 1 page 8, indicators sub-set 2.1.3-5.1.2). As illustrated from figure 1, page 8, the sum of the scores in subset of indicators, from high-income economies such as the Republic of Korea, Finland and the UK that utilize human-factor related variables (such as research, high tertiary enrollment, firms offering formal training etc., see subset box 2.1.3-5.1.2 of figure 1) in innovation are the top performers, within the high-income economies. Although, Europe is the foremost regional area for research, the main problem facing many European states is capitalizing on substantial R&D investments given. At a three percent target, this significantly limits the possibilities therefore it becomes imperative that policymakers focus on creating more attractive incentives for researchers in the private sector and universities similar to the USA, for converting their ideas into innovations and eventually potential products for the global market. The realities associated in ensuring that policymakers understand that supporting the innovation process requires continuous investments overtime universities research and development centers and private companies training facilities, is quite tedious as the current education policy one supports these ventures as a onetime intrinsic event.
Since the financial crisis in 2008, the global economy has strengthened, economic growth has become more balanced across emerging markets and high-income countries (Bruland and Mowery, 2008) and there has been an increased confidence in the private sector and investors. In the last five years, the United States of America, Europe and Japan have experienced positive economic growth (Dutta, 2013). Since then the projections of leading economic institutions in 2015 were positive, although affected by the high unemployment rates. Therefore, the need to gather more knowledge and better understanding the role of the human factor in innovation is critical. From a statistical and analytical standpoint, capturing the contribution and nurturing the human factor through adequate education, training, and motivation in schools, universities, businesses, civil society, and the government has become a challenge to contend with (Global Innovation Index, 2014).

Human capital play key roles in the conceptual and implementation of innovation as well as the inter-organizational, national, and international diffusion of the innovation concept. As mentioned earlier, the human capital is recognized as a set of

![Image of a bar graph showing education as a human aspect of innovation with Top 10 high-income and top 10 middle-income economies.](image-url)}
skills that increase the productivity of the worker within firms and ultimately the overall production process of nations (Becker, 1993/1964). Though difficult to specifically define its role in production processes, human capital can be perceived as the stock of knowledge, skills that positively impact economic output. Developing on the notion that ‘educated people make good innovators’ and as such education speeds the process of technological diffusion where education and experience are the main sources of skills and knowledge of human capital (Global Innovation Index, 2014). From this, growth rates between nations and regions have varied according to the difference in the levels of human capital as well as the capacity of those territories to retain, attract, and expand on their abilities. Economic growth according to Schumpeterian growth literature, is driven by the available stock of human capital, which potentially affects a country’s ability to innovate or keep in pace with more advanced, innovation-efficient economies (Schumpeter, 1934). Furthermore, the OECD’s Oslo Manual states that the most significant innovation capability is knowledge accumulated by the firm, embedded in human resources, procedures, routines and other characteristics of the firm (Global Innovation Index, 2014). Therefore, innovation capabilities are the result knowledge which when defined is termed as the conscious and purposeful learning processes that emerge from the complex thinking, acting, and interacting of people going about their everyday work under certain framework conditions. Successful innovation relies on other actors in the society actors in society that will be the recipients and users. Therefore, the human factor in innovation do not end at the supply side rather it extends out to how innovation is diffused, received and accepted; with the advent of globalized processes, the mobility of people across geographic and cultural boundaries have been significantly altered, ultimately creating a paradigm shift in the way the human factor in innovation ecosystems are perceived.

The Innovation Input Sub-Index and the Innovation Output Sub-Index are two sub-indices, built around pillars that calculates the Innovation Efficiency Ratio (see figure 2, page 9). The Innovation Input Sub Index comprise of five input pillars that capture the elements of the national economy that enable innovative activities. These include:

(1) Institutions;
(2) Human capital and research;
(3) Infrastructure;
(4) Market sophistication;
(5) Business sophistication.

The Innovation Output Sub Index measures the innovation outputs that are the results of innovative activities within the economy. From these sub-indices there are two output pillars:

(6) Knowledge and technology outputs;
(7) Creative outputs.

Using the innovation efficiency ratio, (see figure 2, on the next page) the innovation output of a given country is determined by the amount of inputs, according to the sub-indices pillars. The level of education and research activities are the prime determinants of the innovation capacity of a nation. The quality of education globally is often measured through the results to the OECD Programme for International Student Assessment (PISA), which measure the student-teacher ratios as well as the
literacy levels of 15-year-old students’ and performance in area of sciences mathematics as well. Furthermore, higher education is construed as the crucial element for advancing economies up the value chain beyond simple production processes and products, and that innovation is highly dependent on people that possess the ability to apply knowledge and ideas in the workplace and in society. From this perspective, it one can interpret and reason that explicit links innovation and specific skills are difficult to establish as to date there exist a relative scarcity of innovation-specific empirical studies which proves and identifies of such relationships. Furthermore, a lack of connection between innovation and skilled workers could potentially refute the theory that skills and knowledge primarily the input factors of innovation; specific types of innovation require a substantial amount of training and developing human resources.

Source: Global Innovation Index, 2014

Figure 2: Innovation Efficiency Ratio

Notwithstanding this, the presence of unlimited, well-educated stock of human capital, could potentially aid in accelerating closing the technological divide that exist between developed and developing countries. More importantly, the connection between human capital and innovation in low- and middle-income countries, and its corresponding impact on productivity, stems primarily from the contribution of skilled workers dedicated to adapting existing technologies, not the over-abundance of the talented human capital, hence an ambiguous correlation exits regarding the link between a nation’s supply of highly educated people and wealth of that nation. Therefore, high enrollment rates in higher education institutions that are normally characteristic of developed nations is not truly systematic with high innovation
activities as the current situation tertiary education may change significantly in the years to come.

**Human-centric Innovation Ecosystems**

In an aim to achieve sustainable growth it is important to realize that we are living in a hyper-connected era. In today's world, goods and services, processes and things are linked together: from these relations, value is created by this connectivity. The main challenge however is how to develop from a traditional one-dimensional concept of innovation towards a more holistic approach, which captures and analyzes all the multi-dimensional facets that drives the innovation process. The most important thing is identifying how, using digital technologies, ways to leverage human creativity to highlight that people are the key to innovation (Cornell University, INSEAD, and WIPO, 2014). The human is the primary factor for developing the innovation process, although the quality of the human capital is linked to the level of innovation activities carried out. Other factors, such as technology and capital do influence the innovation process. Additionally, they do correlate with the human factor. Therefore, as mentioned earlier it is important to nurture the human capital at all levels and sections of society as it is crucial for developing the foundation for innovation. Talented human capital can be formed from two primary means: when countries create infrastructures such as schools, colleges, scientific research centers and facilities to develop the knowledge and skills of its citizens locally or by attracting foreign talent from abroad. Governments, industry, academia, and other key factors such as business incubation and mentoring, research and development, are crucial in any innovation ecosystem, yet at the heart of innovation lies the human factor. Therefore, in order foster an innovation-driven society we need to educate our human resources very well and provide enough resources and incentives to build up their ideas. Creating an environment that fosters creativity ensures that innovation will follow. Such a society is termed as the knowledge economy.

Politicians, scientists and academics have stressed for more than a decade that innovation is the key to the future. Currently, there are excess amount of innovation initiatives that range from the mission statements of organizations and companies to the content of the higher education curricula. Due to economic downturn, the need to innovate has increased exponentially. “Design Thinking”, is a new approach to innovation, a model that is more human-centric based, where multifunctional teams would tackle through exploring the underlying needs by persons that are mostly affected by those problems, then based on observations would define the root causes or key elements of the problem and attempt to resolve it through active ideation, prototyping or testing potential solutions. While the process is very well defined and understood, its implementation by managers’ call for further exploration (Cabello, 2015).

*Humanitarian-based* innovation units that are based on human-centric innovation ecosystem models have been implemented by the United Nations (UN). One example is the World Humanitarian Summit, which is a direct response the number of humanitarian crises that continue to affect a significant amount of the world's population due to conflicts and disasters (Sergio, 2016) and rallied around five core principles: “*Prevent and End Conflict, Respect Rules of War, Invest in Humanity,*
Leave No One Behind and Work Differently To End Need”. Other organizations such as UNICEF, UNOCHA, The Red Cross, UNHCR and WFP have been building building innovation units, adapted to similar approaches from the corporate world, which rooted in the Human-Centered Design method, speak directly on the importance of understanding people’s needs and aspirations and foster their creativity to solve complex problems. Using the UN humanitarian approach towards innovation, human-centered innovation ecosystems are more simplified in that it works easily in practice when all stakeholders collaborate and brainstormed approaches that aimed at involving communities to develop solutions for community-based problems. An example of this is where joint UNHCR, Mercy Corps, and Google initiatives created ‘Translation Cards’, for improving communication between aid workers and migrants (Cornell University, INSEAD, and WIPO, 2016). This initiative due to its user-centric not only embraced a “radical collaboration” model, its flexibility and iterative evolutionary feature made it more suitable than other traditional approaches.

However, for a particular type of innovation to be implemented, training the workforce on that given innovation, implementing it in the production process and then later when it is consumed can give rise to incremental improvements to the original innovation (Toner, 2011). On the other hand, the most important condition must be met, which is the presence of a large, well-educated stock of human capital, as it assists countries to accelerate in the technological catch-up. According to the UIS Data Centre the ‘gross enrolment ratio’ (GER) for tertiary education is defined as: “the number of students enrolled in tertiary education, regardless of age, expressed as a percentage of the five-year age group starting from the official secondary school graduation age”. From this definition, it is assumed that the connection between human capital and innovation in low to middle-income countries, its impact on productivity levels is from the contribution of skilled workers focused on adapting to existing technologies through education (Lopez, 2009). Although a large, un-educated population is the main disadvantage of poor innovative performance, the positive externalities from higher educational attainment are seen in higher rate of innovation activities and technology transfer characteristic of developed societies (Bilbao-Osorio and Rodríguez-Pose, 2004). Therefore, continuous improvement of the human capital through formal education and constant R&D activities contributes to increased absorptive capacity of innovation in organizations, which produces an at the end-point a more highly skilled labour force capable of fostering and generating more progress and follow-up innovations in the future (Goedhuys, 2008).

From a knowledge-based perspective, innovation is also a driving force for economic and social change. As innovation is perceived at both macro-level (the nation’s economy) and micro-levels (social progress) by individuals a balance of these interpretations indicates social legitimation of innovation in the ‘lifeworld sense’. One example, is the case of the European Union (EU) where the average ratio between the two groups that clearly recognize the importance of innovation for both economic growth and personal lives is 1:1, while for the Russian Federation this ratio is different (Cornell University, INSEAD, and WIPO, 2014) as there is a substantial gap between the perception of innovation as a source of economic growth (39% of respondents in 2011) and its actual impact on daily life (17%). These discrepancies are a result of discrepancies between perception and impact assessments correlating to an
economy’s transitional curve strategies to a more post-industrial, innovation-based economic model.

Conclusions

1. In analyzing the evolutionary context of innovation, it is clear that innovation is a complex process. In terms of global economics, the genesis of innovation derives from a wide range of sources. Innovation development involves various stages, involves considerable investment, non-linear progression, and constant feedback of vital information in the whole process. Throughout its history, innovation has been broadly defined as containing certain kind of novelty: artistic, scientific, technological, organizational, cultural, social or individual, has been the premise to many theories and recognized as the key feature of the inventor, scientist, entrepreneur or the firm. From the institutional aspect, innovation is recognized as a key characteristic of the individual, and in the main subject fields of psychology, philosophy and sociology. The new paradigm shifts towards the concept of a more ‘human-centric based innovation system is as a result of several economic factors: the political and economic contexts, the industrial and consumer revolutions, the impacts of technologies on individuals and societies, technology as a source of economic growth and productivity and the institutionalization of technological invention through patenting and patent laws, and industrial development through R&D laboratories. From this view innovation, innovation has thus shifted to become more industrially and economically driven due to focusing on the key and most important element that prompts its initial start: the human factor.

2. The literature analyzed confirms the main preconceptions about the link between innovation and skills. Clearly for more human-centric innovation, a correlation between the educational attainment and level of economic development needs to be established. The more developed a country is, the higher the percentage of the population that have completed tertiary education. Furthermore, the regions with the highest numbers of people with tertiary education and with the highest enrolment ratios in higher education are also those with the most researchers as a proportion of the total population. This can be explained in part by the fact that economies that are catching up are more dependent on technology transfer than they are on original R&D. On the other hand, countries with a low economic development do not provide enough incentives for young people to pursue higher education and from that results in economies that cannot grow due to the lack of skill labour market. In order to answer the questions how skills relate to innovation, more research is needed about the type of skills required by employers and as well as the supply of these skills by highly educated people. To that extent, these researches should ask more questions about the requisite skills needed and how those skills relate to firm performance. Moreover, surveys carried out at the individual level are required in order to understand the link between innovation and quality of available human resources. The information gathered from those research activities will require an analysis at the microdata level using econometric methods resources and methods.

3. The future of innovation is human-centric and the challenge is how to develop through higher education human-centered innovation ecosystem at all levels. Such ecosystems ensure that knowledge is harnessed and empowers human resources to
engage innovative activities that lead to more technological breakthroughs. From the literature review highly innovative countries of the world invest heavily towards improving education systems so that it fosters creative thinking, develops skills and talent to emerge and promotes and supports entrepreneurship activities. Rather than investing heavily in capital and technology, the education policy can be structured to amend and reform towards the support the development of skills within arts, science, technology and digital media of the human capital which in true essence is the heart and soul of the entire innovation process, and moreover the condition of the higher education do impact the development of such systems. To a greater extent individual is the creator of innovation and from an economic perspective the originator of commercialized innovation that we are familiar with today. Furthermore, the sociologist E.M. Rogers states, “the adoption of a new idea almost always entails the sale of a new product”. This is why it is necessary to develop a human-centered ecosystem, which is focuses on the invaluable and most important factor of innovation— the human capital.

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Abstract

Purpose – to analyze the peculiarities of users electronic data security and to propose recommendations that would reduce the risk of data loss and misuse.

Design/methodology/approach – analysis and study of scientific literature, comparison, the main features complex generalization, induction methods.

Finding – after analyzing the theoretical aspects of users electronic data protection features, there were introduced the main recommendations that would reduce the risk of data loss and misuse.

Research limitations/implications – would be necessary to do a bigger research and apply more methods.

Practical implications – this information can be used to enhance security measures to avoid incidents involving loss, alteration, and misuse of data.

Originality/Value – cyber security is the most critical aspect nowadays of our technologically based lives. Neglected the protection of electronic data, highlighted the complex security components: poor (weak) passwords used, irresponsible sharing of private information on social networks with third parties.

Keywords: electronic information, CIA triad, passwords, authentication, Facebook social network, data security.

Research type: general review.

Introduction

The ever-growing use of technology encourages a wide range of security measures to protect consumers’ electronic data.

Information security (safety) is understood as the protection of information and system infrastructure against accidental or intentional, natural or artificial effects that could cause damage to the owners or users of the information or system infrastructure in question (Štitilis et al., 2016). Information security is a multidisciplinary area of study and professional activity which is concerned with the development and implementation of security countermeasures of all available types (technical, organisational, human-oriented and legal) in order to keep information in all its locations (within and outside the organisation’s perimeter) and, consequently, information systems, where information is created, processed, stored, transmitted and destructed, free from threats (Cherdantseva, Hilton, 2013). Information security issues of a technical nature have been prevalent for a long time and are still relevant, but there is has been an obvious and ongoing shift in the problems investigated in
information security research towards a wider, increasingly more multi-faceted managerial approach (Jastiuginas, 2012).

Object of the research. Electronic data security.

Purpose – to analyze the peculiarities of users electronic data security and to propose recommendations that would reduce the risk of data loss and misuse.

There have been set the following objectives for the above mentioned purpose to be achieved to:

1. Set the impacts, potential consequences and methods of control of confidentiality, integrity and availability;
2. Evaluate random passwords to determine their security;
3. Determine Facebook authentication features.

Data is information that a computer receives, processes, displays and stores. Data is divided into images, texts, numbers, symbols and characters. Data is converted into information when it becomes understandable to a particular entity. Often, data and information are considered synonymous. Information security means protecting information and information systems from unauthorized access, use, disclosure, disruption, modification or destruction (Andress, 2011). Data (information) security is a global, continuous process that requires continuous improvement in adapting to changing technologies.

CIA triad analysis

The Security triad or CIA triad, a distinguished model for the development of security mechanisms, implements the security by making use of the three areas which are Data confidentiality, integrity and availability (Farooq et al., 2015) as shown in the Fig. 1.

![CIA triad model](source: Author)

**Figure 1. CIA triad model**
The three core goals have distinct requirements and processes within each other:

1. Confidentiality is the protection of information from unauthorized access or disclosure.
2. Integrity is the protection of information from unauthorized modification;
3. Availability ensures the timely and reliable access to and use of information and systems.

Confidentiality is approximately equivalent to privacy. Measures undertaken to ensure confidentiality are designed to prevent sensitive information from reaching the wrong people, while making sure that the right people can in fact get it. Access must be restricted to those authorized to view the data in question. It is common, as well, for data to be categorized according to the amount and type of damage that could be done should it fall into unintended hands. More or less stringent measures can then be implemented according to those categories.

Integrity involves maintaining the accuracy, consistency, and trustworthiness of data over its entire lifecycle. Data must not be changed in transit, and steps must be taken to ensure that data cannot be altered by unauthorized people.

Availability ensured by the maintenance of hardware as well as maintaining the operating system in proper functioning where any kind of software conflict doesn't take place (Mohanty et al., 2018). It’s also important to keep current with all necessary system upgrades.

The CIA triad of information security was created to provide a baseline standard for evaluating and implementing information security regardless of the underlying system and/or organization. A breach in any of these areas could cause serious issues to the system. The impacts, potential consequences and methods of control of confidentiality, integrity and availability are shown in Table 1.

### Table 1. Confidentiality, Integrity and Availability Model and Related Impacts

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Impact and Potential Consequences</th>
<th>Methods of Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidentiality: the protection of information from unauthorized disclosure</td>
<td>Loss of confidentiality can result in the following consequences: • Disclosure of information protected by privacy laws • Loss of public confidence • Loss of competitive advantage • Legal action against the enterprise • Interference with national security</td>
<td>Confidentiality can be preserved using the following methods: • Access Controls • File Permissions • Encryption</td>
</tr>
<tr>
<td>Integrity: the accuracy and completeness of information in accordance with business values and expectations</td>
<td>Loss of integrity can result in the following consequences: • Inaccuracy • Erroneous decisions • Fraud</td>
<td>Integrity can be preserved using the following methods: • Access controls • Logging • Digital Signatures • Hashes • Encryptions</td>
</tr>
</tbody>
</table>
### Analysis of a secure system for password generation

In the physical world, the best analogy would be that any person can claim to be anyone (identification). To prove it (authentication), however, that person needs to provide some evidence, such as a driver's license, passport, and so forth (Dulaney, Easttom, 2014). The classic paradigm for authentication systems identifies three factors as the cornerstones of authentication:

1. **Something you know** (e.g., a password);
2. **Something you have** (e.g., an ID badge or a cryptographic key);
3. **Something you are** (e.g., a fingerprint or other biometric data).

Authentication - The act of verifying the identity of a user and the user's eligibility to access computerized information. Authentication is designed to protect against fraudulent logon activity. It can also refer to the verification of the correctness of a piece of data.

Passwords are a traditional and widespread method of authentication, both on the Internet and off-line. Passwords are portable, easy to understand for laypersons, and easy to implement for the operator. Thus, password-based authentication is likely to stay for the foreseeable future. Most sites let users choose their password, as the usability of automatically generated passwords is low (Yan et al., 2004). Existing password-based authentication schemes can be categorized into two types - one uses weak password and the other uses strong-password (Das et al., 2004). A password is a string of characters used for authenticating a user on a computer system. Most passwords are comprised of several characters, which can typically include letters, numbers, and most symbols, but not spaces. Passwords play a large part of the typical web user’s experience. They are the near universal means for gaining access to
accounts of all kinds. Email, banks, portals, dating and social networking sites all require passwords. Text-based passwords are the most common mechanism for authenticating humans to computer systems. The more difficult a user’s password is, the more difficult it becomes for a miscreant to break it and log in as that user, and the more difficult it becomes, as well, for the user to remember it. Thus, you need to obtain a fine balance between the two extremes. Passwords are the first line of defense against attacks to a computer system. The rules for password choice can be certainly a cumbersome problem for a user and a security problem for a system.

SANS (SysAdmin, Audit, Network, Security) is a large collaborative group of security professionals that provide information security training and certification. Their recommended password protection policy defines the standard for the creation of strong passwords.

1. Strong passwords have the following characteristics:
   - Contain at least 12 alphanumeric characters.
   - Contain both upper and lower case letters.
   - Contain at least one number (for example, 0-9).
   - Contain at least one special character (for example, !$%^&*()_+|~\-=\[]:";'<>?,/).

2. Poor, or weak, passwords have the following characteristics:
   - Contain less than eight characters.
   - Can be found in a dictionary, including foreign language, or exist in a language slang, dialect, or jargon.
   - Contain personal information such as birthdates, addresses, phone numbers, or names of family members, pets, friends, and fantasy characters.
   - Contain work-related information such as building names, system commands, sites, companies, hardware, or software.
   - Contain number patterns such as aaabbb, qwerty, zyxwvuts, or 123321.
   - Contain common words spelled backward, or preceded or followed by a number (for example, terces, secret1 or 1secret).
   - Are some version of “Welcome123” “Password123” “Changeme123”

Various organizations provide similar recommendations. Failure to comply with the recommendations for creating a secure password increases the risk of the system being hacked into and the password may be appropriated by a third party. There are many websites on the Internet where one may check the strength of the password and the time required to guess what it is. We have used “Kaspersky Lab secure password check” to check strong passwords created in accordance with the recommendations for secure password generation and insecure (short, memorable) passwords and obtained the following results (see Table 2):
Table 2. Weak and strong passwords

<table>
<thead>
<tr>
<th>Weak password</th>
<th>Brute force attack cracking time</th>
<th>Strong password</th>
<th>Brute force attack cracking time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminator</td>
<td>37 seconds</td>
<td>20'sTermlnator!</td>
<td>15 years</td>
</tr>
<tr>
<td>Psychopath</td>
<td>2 minutes</td>
<td>Psy-cho*path</td>
<td>200 years</td>
</tr>
<tr>
<td>Oldhouse</td>
<td>17 minutes</td>
<td>1Old*/house2*</td>
<td>25 years</td>
</tr>
<tr>
<td>rockmusic</td>
<td>15 minutes</td>
<td>R0ck/*mu-sic</td>
<td>94 years</td>
</tr>
<tr>
<td>Internetas1</td>
<td>12 days</td>
<td>lnter/netaS*</td>
<td>30 years</td>
</tr>
<tr>
<td>darkroom</td>
<td>2 minutes</td>
<td>Daark/1room*</td>
<td>41 years</td>
</tr>
</tbody>
</table>

Source: Kaspersky Lab secure password check

In brute force attack, all possible combinations of password apply to break the password (Fujita, Hirakawa, 2008). A brute-force attack is an attempt to guess passwords until a successful guess occurs. For example a user enters a password of 8 characters and all characters are lower case letters then to break the password using the brute force attack it requires \((26)^8\) combinations which is equal to 208827064576.

US National Institute of Standards and Technology (NIST) Special Publication 800-63B states that users should be encouraged to make their passwords as lengthy as they want, within reason. Since the size of a hashed password is independent of its length, there is no reason not to permit the use of lengthy passwords (or pass phrases) if the user wishes. Extremely long passwords (perhaps megabytes in length) could conceivably require excessive processing time to hash, so it is reasonable to have some limit. It now suggests that users create passwords with long, easy-to-remember phrases.

A check of random long passwords on “Kaspersky Lab secure password check” has yielded the following results (see Table 3):

Table 3. Long passwords

<table>
<thead>
<tr>
<th>Long passwords</th>
<th>Number of characters</th>
<th>Brute force attack cracking time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ifeelgoodtonight*</td>
<td>17</td>
<td>4 centuries</td>
</tr>
<tr>
<td>Mycatisveryangry</td>
<td>16</td>
<td>11 centuries</td>
</tr>
<tr>
<td>Houseundertheground</td>
<td>19</td>
<td>4 centuries</td>
</tr>
<tr>
<td>Rock/metal*music</td>
<td>16</td>
<td>13 centuries</td>
</tr>
<tr>
<td>It.hastobedone</td>
<td>14</td>
<td>12 centuries</td>
</tr>
<tr>
<td>Neverending-story</td>
<td>17</td>
<td>4 centuries</td>
</tr>
</tbody>
</table>

Source: Kaspersky Lab secure password check

To summarize the results, one can argue that the length of the password and the characters used therein have a significant impact on security. Longer passwords comprised by individual words are safer and easier to remember than shorter passwords with multiple characters.
Personal data security on the Facebook social networking platform

A social network is an online community of people with a common interest who use a website or other technologies to communicate with each other and share information, resources, etc. Facebook is the largest social network on the planet boasts an extremely large user base with a large number of groups for sharing interests. Facebook is also used to share comments on a multitude of websites, making its reach even farther (Oriyano, 2017). The popularity of social networks is constantly increasing. Facebook is the most popular social network in the world with a monthly number of active users of over 2 billion (Statista, 2018).

Specifically, updating profile information, posting status updates, sharing photos and videos, and commenting on others’ posts - to name a few - are behaviors that reveal aspects of one’s personal identity. However, this escalating personal exchange on social networking sites also raises questions about privacy risks and consequences (Fogel, Nehmad, 2009). In fact, social capital researchers suggest that people must be willing to reveal personal information in order to fully experience the relational benefits of social media use (Vitak, 2012). Most probably one of the great advantages of social networks is that they make the world more open and more interconnected. Not only distances between people disappear but also longer time needed to transfer the message, and users can communicate with other people in real time although they are on the different sides of globe.

Research shows that factors such as attitudes toward privacy, security, and transparency can impact online disclosure practices (Acquisti, Gross, 2006). Authors Limba and Šidlauskas (2018) states, what information users share with the Facebook social network is an individual choice, some of them alone provide a lot of information about themselves and the whole surrounding reality, and others strive to protect their privacy and publish only minimal information. Types of the user data publicity:

1. Public information, which is publicly available to all Facebook users;
2. Secret information, which is available only to the Facebook account administrator;
3. Closed information, which is publicly available to all Facebook users or individual friends and specific interest groups.

Various sites whose services are only available to registered users are increasingly offering an alternative form of registration: namely, authentication through sharing the user's personal data via the Facebook's social networking platform. Certain personal data is required for traditional user registration, including the login, the password or the email address. The specific personal data requested depends on the service provider on the nature of the the services in question. A user may be required to provide their name and surname, year of birth, telephone number etc. In order to login to a particular website, a user enters their login and password.

Registration via Facebook is a much faster way to connect to a website as one does not need to enter any of the data requested. The site authenticates the user on the basis of their Facebook data. The user must submit a public profile to a third party containing the following: name, profile picture, age range, gender, language, country, and other public information. Often, websites abuse this principle and ask for an unreasonable amount of personal data, such as the user’s friend list, photos, email...
address, likes, birthday, timeline posts and other information. Below one can see the Facebook user authentication window (Figure 2).

![Facebook user authentication window](source)

**Source:** Facebook social network

**Figure 2. Facebook user authentication window**

The user is able to edit the list of requested data and refuse to provide all the information, but the service provider may deny them access, in which case the desired service will be inaccessible. In this case, the user can re-register and submit the remaining requested data (Šidlauskas, 2017). Third-party provide social network user privacy policies that specify the terms that the user must accept prior to using the application. Privacy policies are often overlooked due to their complexity and scope. In this case, consumers become vulnerable because they do not know if their rights of personal data subjects are guaranteed. The main problem with the virtual social network Facebook, as well as other virtual social networks, is that the purpose of data collection and administration is either obscure or too broadly defined (Karg, Fahl, 2011).

In a similar vein, research in the area of information privacy also focuses on people’s attitudes toward safeguarding their privacy at an institutional level as threats to privacy are largely associated with the desire for privacy protection (Lyon and Zureik, 1996). In light of the inundation of personal data revealed in the virtual world, the abundance of information that is freely and publicly shared by users is likely to promote a culture where both perceived threat to privacy and support for privacy protection are mitigated (Tsay-Vogel et al., 2016).

Scholars point to the negative implications of the disclosure of personal data as it is related to identity theft, harassment, cyberstalking, bullying, and unwarranted rumors and gossip (Tavani, Grodzinsky, 2002). On the other hand, although users
report being aware of privacy risks, they do little to implement safeguards to protect their personal information (Dwyer et al., 2007).

Once a user registers on a particular website through Facebook, an application is created and then entered into the user’s Facebook profile. The site manager obtains permanent access to the user’s Facebook data (verified during authentication). To ensure the security of their personal data, users should regularly view their Facebook settings and delete any applications they do not use. In this way, access to the user's personal data is discontinued for the third party (site) (see Figure 3).

![App Settings](source: Facebook social network)

**Figure 3. Facebook App Settings**

It is important to note that removing the application does not delete the data possessed by the third party. As a result, users who want their personal data to be deleted need to send a separate email to the site administrator, although one cannot guarantee that the user's data will actually be deleted after such a request.

**Conclusions**

Confidentiality, integrity and availability are the concepts most basic to information security. These concepts in the CIA triad must always be part of the core objectives of information security efforts. The CIA triad of information security was created to provide a baseline standard for evaluating and implementing information security regardless of the underlying system and/or organization. The factors relevant to information security are combined within the strategic, human and technological dimensions of information security management. Information is the greatest asset and the most important security object.

Authentication is the act of verifying the identity of a user and the user's eligibility to access computerized information. Passwords are a traditional and widespread method of authentication, both on the Internet and off-line. The length of a password and the characters used therein have a significant effect on security. Long passwords comprised by individual words are safer and easier to remember than shorter passwords with random characters.
To gain access to the services of certain registration-based websites, users must decide which mode of registration to use: traditional (user authentication using a login and password) or alternative (user authentication using data from a social networking platform). Registration through Facebook grants a third party (site manager) permanent access to the personal data on the user’s social networking page that was verified during authentication, as the site’s application is integrated into the user’s Facebook profile. To ensure the security of their personal data, users should regularly review their Facebook settings and delete any applications they do not use. In this way, access to the user’s personal data is discontinued for the third party (site).

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SOCIAL TRANSFORMATION OF PAKISTAN UNDER THE SPEECH OF
MUHAMMAD ALI JINNAH ON 11TH AUGUST 1947

Sohaib Mukhtar

The National University of Malaysia, Malaysia
sohaibmukhtar@gmail.com

Abstract

Muhammad Ali Jinnah is the founder of Pakistan, delivered his first speech as Governor General of Pakistan in first session of the first Constituent Assembly of Pakistan on 11th August 1947. The speech has divided Pakistani society into 2 groups (i) first group advocates secularism in Pakistan, as (ii) second group emphasis that Pakistan is an Islamic State outcome of the struggle of Muslims of British India therefore there is no space of secularism in Pakistan. Muhammad Ali Jinnah stated that every individual living in Pakistan is the citizen of Pakistan without discrimination as to cast, color, creed, and community. If we look back to the first Islamic State founded by Prophet Muhammad (ﷺ) it is clearly held that Muslims and Jews of the first Islamic State were declared as equal citizens and one community without discrimination under the Constitution of Madinah (Mīthāq al-Madīnah), therefore Islamic State does not mean discrimination based on religion as all citizens have equal rights before law without discrimination as to cast, color, creed and community.

Purpose – This research is an analysis of Muhammad Ali Jinnah’s speech before the first Constituent Assembly of Pakistan on 11th August 1947 under the light of the Constitution of the first Islamic State founded by Prophet Muhammad (ﷺ) in Madinah to clarify important portion of the speech of Muhammad Ali Jinnah.

Design/methodology/approach – This study is routed in qualitative method of research to analyze important portion of the speech of Muhammad Ali Jinnah under the light of relevant portion of Mīthāq al-Madīnah to remove misconceptions spread among Pakistani society by a group advocates secularism in Pakistan.

Finding – This study would help people of Pakistan to understand the true meaning of the speech of Muhammad Ali Jinnah as well as the true message of Islam where there is equal opportunity for all and there is no discrimination as to cast, color, creed and community before Law as all living human beings in a state are citizens of the state as were declared by Prophet Muhammad (ﷺ) in Mīthāq al-Madīnah.

Research limitations/implications – This study is an analysis of the speech of Muhammad Ali Jinnah on 11th August 1947 delivered before the first Constituent Assembly of Pakistan. This study is also an analysis of the Constitution of the first Islamic State in Madinah known as Mīthāq al-Madīnah. This study will not go into deep detailed analysis of the speech of Muhammad Ali Jinnah as well as deep detailed analysis of Mīthāq al-Madīnah and it is only an analysis of relevant portion of the speech of Muhammad Ali Jinnah delivered on 11th August 1947 and relevant portion of Mīthāq al-Madīnah.

Practical implications – This study aims to point out and wipe out misconceptions created by a secular group in Pakistani society stating Muhammad Ali Jinnah wanted a secular State where religion does not come into discussion in framing of the Constitution and
Laws. This study aims to clarify important portion of the speech of Muhammad Ali Jinnah under the light of relevant part of Mīthāq al-Madīnah.

**Originality/Value** – This study is personal and original work of the author on the chosen topic and there are not many articles written on related topic and this research is conducted keeping in mind principles of piracy and illegal methods of doing research.

**Keywords:** Prophet Muhammad ﷺ, Madinah. Mīthāq al-Madīnah. Muhammad Ali Jinnah. Islamic Republic of Pakistan.

**Research type:** This study is general review of the speech of Muhammad Ali Jinnah on 11th August 1947 and its comparative analysis with the Constitution of the first Islamic State Madinah (Mīthāq al-Madīnah) promulgated by Prophet Muhammad ﷺ.

**Introduction**

Muhammad Ali Jinnah is the founder of Pakistan, born on 25th December 1876, worked as a lawyer and later joined politics and led Muslim League who asked for a new Muslim Land Pakistan in British India on 23rd March 1940. Pakistan came into being on 14th August 1947 and Muhammad Ali Jinnah served as its first Governor General, delivered his speech before the first Constituent Assembly of Pakistan on 11th August 1947. The speech has divided Pakistani society into two groups (i) one group advocates that Pakistan is a secular state and religion is the personal matter of every citizen of Pakistan, (ii) second group (which is in majority) advocates that Muslims of British India struggled for a separate Muslim Land therefore there is no space of secularism in Pakistan. Pakistan is an Islamic State where all citizens have equal rights before law without discrimination as to cast, color, creed, and community.

The State religion of Pakistan is Islam as per article 2 of the Constitution of Pakistan 1973. Studying Islamic Studies and Holy Quran is made compulsory for Muslim citizens of the State as studying Arabic language is highly encouraged as per article 31 of the Constitution of Pakistan 1973. Muslim is defined under article 260 (3) (a) & (b) of the Constitution of Pakistan 1973 as a person who believes in oneness of Almighty Allah and last prophecy of the last Prophet Muhammad ﷺ and Non-Muslim is a person who does not believe in oneness of Almighty Allah and last prophecy of the last Prophet Muhammad ﷺ.

A small group advocates that Pakistan should be a secular state as the struggle of Muslims of British India was only for economic harmony and better opportunity for people who were deprived during the reign of British India (1857-1947). Secular group always quote Muhammad Ali Jinnah’s speech delivered on 11th August 1947 in which he stated that Muslims and Non-Muslims will all be citizens of the State and serve the State jointly as one community.

Second group is in majority and does not accept secularism in Pakistan by stating that Muslims of British India were deprived of their religious rights as when Hindus came into the power, they promulgated many orders against Islamic beliefs includes slaughtering cows therefore Muslims of British India wanted a separate Islamic State where they can live peacefully and exercise their religious rights without any hindrance. Therefore, it is imbedded under article 227 of the Constitution of Pakistan 1973 that no law can be made in Pakistan contrary to injunctions of Islam laid down in Holy Quran and Sunnah of Prophet Muhammad ﷺ.
Muhammad Ali Jinnah stated in his speech on 11th August 1947 that Muslims and Non-Muslims of Pakistan will be treated equally and will be considered equal citizens of Pakistan. He clarified his statement that he was stating Muslims and Non-Muslims as one community in political sense as all are citizens of Pakistan their religious rights are guaranteed in the State of Pakistan. Therefore, it is imbedded under article 20 of the Constitution of Pakistan 1973 that every citizen of Pakistan shall have right to practice, profess, and propagate his religion. Moreover, as per article 36 of the Constitution of Pakistan 1973, the State of Pakistan is required to safeguard legitimate rights and interests of minorities.

Same is prescribed under the Constitution of Madinah (Mīthāq al-Madīnah) promulgated by Prophet Muhammad ﷺ as leader of the first Islamic State of the World. It states that Non-Muslims of Madinah will be treated as equal citizens with Muslims. They shall not be wronged, and their enemies will be considered as enemies of all and will not be supported against them.

This research is qualitative method of research, an analysis of the speech of Muhammad Ali Jinnah delivered before the first Constituent Assembly of Pakistan on 11th August 1947 created a controversy between secular and religious group. The speech is required to be analyzed under the light of the Constitution of the first Islamic State Mīthāq al-Madinah where Muslims and Non-Muslims are guaranteed their fundamental rights of freedom and were declared as one community without discrimination as to caste, color, and creed.

Analysis of Muhammad Ali Jinnah's Speech under the light of Mīthāq al-Madinah

The first Governor General of Pakistan Muhammad Ali Jinnah stated in his speech on 11th August 1947 that if we want to change the past we have to work together as one nation without discrimination as to community, religion, color, caste and creed. He added that every citizen of Pakistan has equal rights, privileges and obligations therefore we should strive together to make Pakistan one of the greatest nations of the World (Wolpert, 1984).

After the independence of Pakistan on 14th August 1947, religious rights and rights for minorities guaranteed under the Objectives Resolution in 1949 and later under the Constitution of Pakistan 1973. The Objectives Resolution 1949 guaranteed freedom of religion which was later imbedded under article 20 of the Constitution of Pakistan 1973. The Objectives Resolution 1949 also emphasized that adequate provision shall be made for minorities to freely profess and practice their religion which was later imbedded under article 36 of the Constitution of Pakistan 1973 (Mukhtar, 2016; Mukhtar, 2017).

Muhammad Ali Jinnah stated that Muslims and Non-Muslims are equal citizens of Pakistan without discrimination as to color, creed, cast, and community. The statement made by Muhammad Ali Jinnah quoted by secular group advocating secularism in Pakistan and believing that Pakistan is made to create a secular society where religion has nothing to do with affairs of the State (Hoodbhoy and Nayyar, 1985). Other group state that Pakistan is created for Islam and for the wellbeing of the Muslims of British India as Non-Muslim citizens of Pakistan have equal rights under the Constitution of Pakistan 1973 (Ahmed, 2005).

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If we look back at the first Islamic State created in Madinah under the leadership of Prophet Muhammad ﷺ, there were two religious groups (i) Muslims, and (ii) Jews. Prophet Muhammad ﷺ was the founder and first leader of the State of Madinah. A charter was signed between Muslims and Jews of Madinah, which is considered the Constitution of Madinah and known as Miḥāq al-Madīnah. Miḥāq al-Madīnah guarantees social, legal and economic equality to all loyal citizens of the State without discrimination as to cast, color, creed, and community (Mahmood, 2002).

Miḥāq al-Madīnah states that Non-Muslims of Madinah will be treated as equal citizens with Muslims. They shall not be wronged, and their enemies will be considered as enemies of all and will not be supported against them. Miḥāq al-Madīnah further states that Non-Muslims will be treated as one community with Muslims, their freedom and personal rights are fully secured in an Islamic State except those who behave unjustly and sinfully. Miḥāq al-Madīnah further states that no Jew will be wronged just because he is a Jew. Islamic State will protect life, liberty, and wealth of all citizens of an Islamic State without discrimination as to cast, creed, color, and community. Religious freedom is guaranteed under Miḥāq al-Madīnah and Muhammad Ali Jinnah stated the same in his speech on 11th August 1947 that every citizen of Pakistan is free, Sikh is free to go to temple, Muslim is free to go mosque in a State of Pakistan (Jinnah, 1989).

Muhammad Ali Jinnah quoted an example that in England the situation was much worse than the situation in Pakistan. Roman Catholics and Protestants persecuted each other and there are some States in the World where discrimination is made, and bars imposed against a particular class which is a clear-cut violation of the teachings of Islam prescribed in Holy Quran and Sunnah of Prophet Muhammad ﷺ (Prasad, 1982).

Almighty Allah is the Lord of all that exist, Lord of each individual human being and not the lord of Muslims alone as he states, "All praise and thanks to Allah, the Lord of all creatures" (Holy Quran 1:1). He also states, "And if Allah did not check of people by means of another, the earth would indeed be full of mischief, but Allah is full of bounty to all that exist" (Holy Quran 2:251).

Muhammad Ali Jinnah stated that in the course of time Hindus would cease to be Hindus and Muslims would cease to be Muslims, not in the religious sense, because that is the personal faith of each individual, but in the political sense as citizens of the State. Muhammad Ali Jinnah himself clarified his statement that he is talking this in political sense and not in religious sense which is same as prescribed in Miḥāq al-Madīnah where Muslims and Jews were treated as equal citizens of the first Islamic State of Madinah (Kamali, 1993).

Miḥāq al-Madīnah states that Jews of Madinah will be treated as one community with believers of Madinah as same stated by Muhammad Ali Jinnah in his speech that Muslims and non-Muslims all are citizens of Pakistan and have full protection of life, liberty and property under Law of the Land. Miḥāq al-Madīnah further states that only those Jews will be treated with strong hands who act against the State unjustly and sinfully and by so doing they wrong themselves and their families (Safi, 1991).

Muhammad Ali Jinnah emphasized that among duties of the State (i) to maintain law and order so that the life, liberty, property and religious belief of its subjects are
fully protected by the State, (ii) the second duty is to wipe out bribery, corruption, black marketing, nepotism and jobbery which all are poison for a society (Jalal, 1994).

*Mīthāq al-Madīnah* states that enemies of Jews will not be helped and will be taken up by strong hands, therefore life and liberty of Non-Muslim Jews guaranteed under the Constitution of first Islamic State. *Mīthāq al-Madīnah* further states that Jews will contribute towards the War while fighting alongside believers. The Charter of Madinah even goes beyond and states that those in alliance with Non-Muslim Jews of Madinah will be given the same treatment by the State of Madinah as given to Jews of Madinah. Non-Muslim Jews of Madinah were given privilege that if they do not want to go to a war and do not want to fight with enemies who attacked on an Islamic State, they may deny participating and instead pay expenses of war (Khadduri, 2006).

It is sufficiently clarified that the speech of Muhammad Ali Jinnah delivered before the first Constituent Assembly of Pakistan on 11th August 1947 is not against Islamic principles and does not propagate secularism as same is prescribed under *Mīthāq al-Madīnah*: the first Constitution of the first Islamic State created under the leadership of Prophet Muhammad ﷺ.

**Conclusion and Recommendations**

Muhammad Ali Jinnah is the founder of Pakistan and served as its first Governor General from 14th August 1947 until his death on 11th September 1948. He took oath as first Governor General of Pakistan on 11th August 1947 and delivered his first speech as Governor General of Pakistan on the same occasion which divided Pakistani society into two groups.

One group advocates that Muhammad Ali Jinnah wanted a secular state where religion is private matter of every citizen and religion would not come into discussion while framing the Constitution and Laws. Muhammad Ali Jinnah stated that Muslims and Non-Muslims are all citizens of Pakistan and they are required to work jointly to make Pakistan one of the greatest nations of the World.

Second group is in majority emphasizing on an Islamic State where the Constitution and Laws are made in consistent with basic principles prescribed in Holy Quran and Sunnah of Prophet Muhammad ﷺ. It is therefore Islam is declared as religion of the State under article 2 of the Constitution of Pakistan 1973. Knowledge of Holy Quran and Islamic Studies made compulsory for Muslims and knowledge of Arabic language is highly encouraged under article 31 of the Constitution of Pakistan 1973. No law can be made in Pakistan against injunctions of Islam laid down in Holy Quran and Sunnah of Prophet Muhammad ﷺ as per article of 227 of the Constitution of Pakistan 1973.

After an analysis is made, it is concluded that the speech of Muhammad Ali Jinnah on 11th August 1947 is not against injunctions of Islam as same had been prescribed under the Constitution of Madinah (*Mīthāq al-Madīnah*) 1400 years ago where Muslims and Non-Muslim Jews lived together in Madinah under the leadership of Prophet Muhammad ﷺ.

It is therefore recommended that the speech of Muhammad Ali Jinnah should not be understood in isolation and should be read under the light of *Mīthāq al-Madīnah* for clear understanding of religious rights of Non-Muslims in an Islamic State.
References


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